SERVICE MANUAL
SILVER

STEREO SYSTEM 300

MODEL ST 300
SA 300
SD 300
SL 300

MC-Service

SPECIFICATIONS

STEREO TUNER : MODEL ST300

Dimensions ····· 420(W) × 250(D) × 123(H)mm
Weight ····· 4.3 kg
Tuning Range ····· FM : 87.5—108 MHz
MW: 525—1605 kHz
LW : 145—285 kHz
SW : 3.8—12 MHz(79—25m)

FM TUNER SECTION

Tuning System ····· Capacitor diode with 5 station preset and 1 manual tuning
Antenna System ····· 300 ohm balanced external antenna (DIN)
Usable Sensitivity ····· 2 μV (S/N: 30 dB)
Signal/Noise Ratio ····· 67 dB (1mV input, 75 kHz)
Image Ratio ····· 45 dB (98 MHz)
Distortion ····· Monaural: 0.15% (1mV input, 75 kHz)
Stereo: 0.2% (1mV input, 75 kHz)
AM Suppression ····· 80 dB
Stereo Separation ····· 41 dB (at 1 kHz, 1 mV input)
Selectivity ····· 65 dB

AM TUNER SECTION

Antenna System ····· External antenna (DIN) and ferrite bar antenna
Usable Sensitivity ····· MW: 310 μV/m (S/N : 20 dB)
LW : 630 μV/m (S/N : 20 dB)
SW : 40 μV (S/N: 20 dB)
Image Ratio ····· MW: 35 dB (1400 kHz)
LW : 53 dB (260 kHz)
SW : 14 dB (11 MHz)

STEREO AMPLIFIER : MODEL SA300

Power Supply ····· AC 220V 50/60 Hz
Power Consumption ····· 330W(maximum)
Dimensions ····· 420(W) × 285(D) × 123(H)mm
Weight ····· 6.9 kg
Music Power Output ····· 164W total (1% THD 4 ohm)
100W total (1% THD 8 ohm)
Power Output (R.M.S.) ····· 50W × 2 (1% THD 4 ohm)
36W × 2 (1% THD 8 ohm)
Frequency Response ····· 3Hz—100kHz ±1.5 dB
Crosstalk ····· 52 dB at 1 kHz
Signal/Noise Ratio ····· 77 dB (Aux)
Input Jacks Sensitivity and Impedance
Cassette : 130mV 35 k ohm) Inner connection
Tuner (Aux): 130mV 35 k ohm) use
Phono (Magnetic): 2.3mV 50 k ohm
Cassette (Recording) Output ····· Inner connection use
Tone Controls
Bass : +10 dB, −12 dB at 50 Hz
Treble : +12 dB, −14 dB at 10 kHz
Hi-Filter ····· −3.6 dB at 8 kHz
Lo-Filter ····· −3.6 dB at 50 Hz
Loudness Control ····· +11 dB at 50 Hz
TB ····· DIN 5P
Headphones ····· More than 8 ohm

STEREO CASSETTE TAPE DECK : MODEL SD300

Dimensions ····· 420(W) × 285(D) × 153(H)mm
Weight ····· 4.5 kg
Type ····· 4 track 2 channel stereo
Tape Speed ····· 4.75 cm/sec.
Rewind Time ····· 100 second approx. with C-60 cassette tape
Frequency Response ····· 20Hz—16kHz (CrO_2)
Signal/Noise Ratio ·····
Dolby noise reduction in : 60 dB
Dolby noise reduction out: 54 dB
Erase Ratio ····· 70 dB
Channel Separation ····· 55 dB
Crosstalk ····· 74 dB
Wow and Flutter ····· 0.06% (WRMS)
Microphone Input Sensitivity ····· 0.074mV
Line Input Sensitivity ··· 30mV

STEREO PLAYER : SL300

MISCELLANEOUS

Power Supply ····· AC 220V 50 Hz
Power Consumption ····· 10W
Dimension ····· 454(W) × 130(H) × 354(D)mm
Weight ····· 5 kg

TURNTABLE

Motor ····· 4-Pole Synchronous
Drive System ····· Belt Drive
Speeds ····· 33-1/3 and 45 R.P.M.
Deviation of Speeds ····· +1.5%, −1.0%
Wow and Flutter ····· 0.08% (WRMS) ±0.12%
Signal/Noise Ratio ····· 60 dB
Turntable-Platter ····· 30 cm Aluminum Die-Cast

TONEARM

Type ····· Static-Balance S-Shaped Tubular
Effective Length ····· 213 mm
Cartridge Weight Range ····· 2 to 7 g
Cartridge Shell Weight ····· 8.5 g (without screws and nuts)

CARTRIDGE

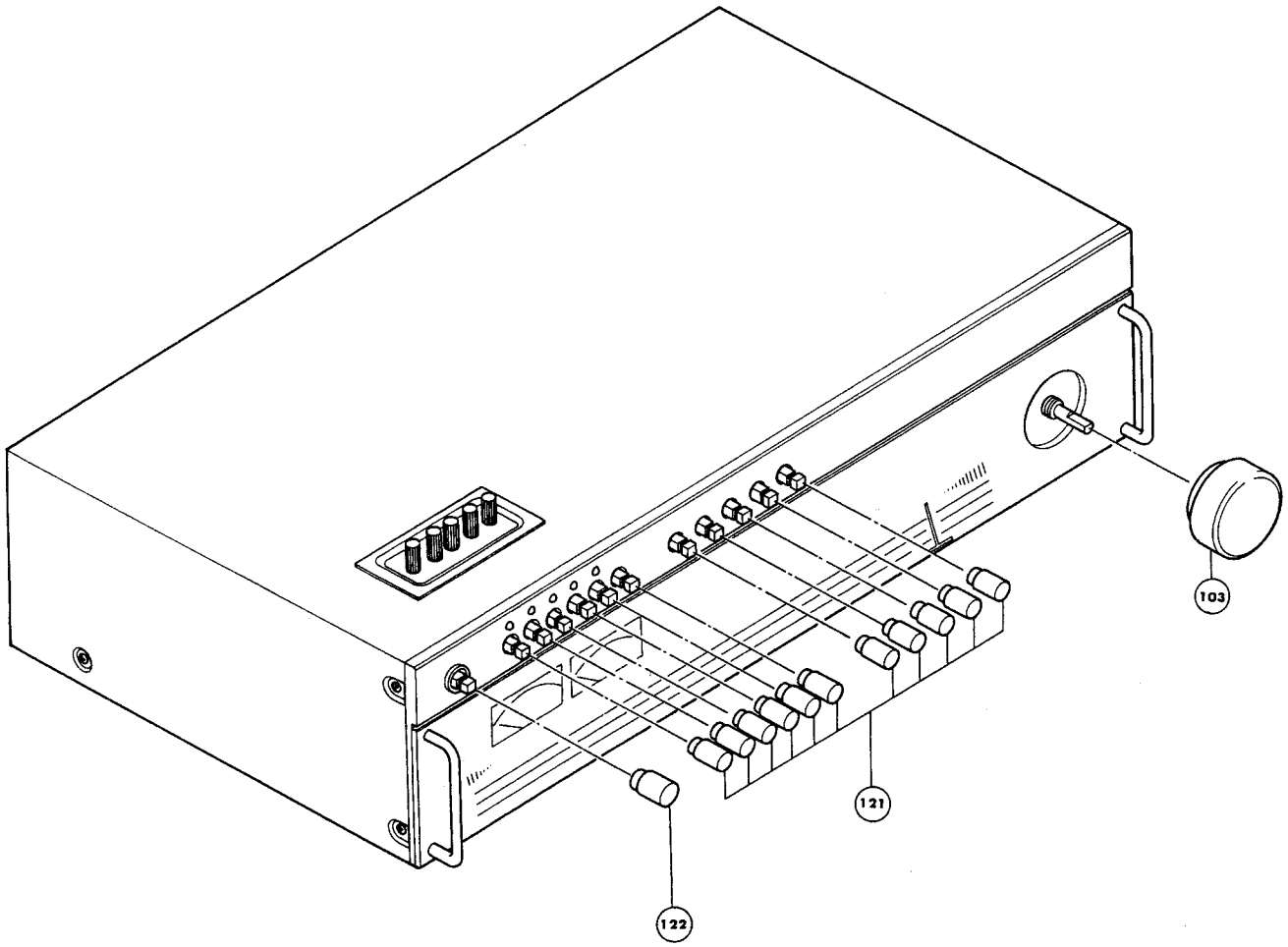
Type ····· MM Cartridge
Frequency Response ····· 40 Hz—15 kHz
Output ····· 3mV
Channel Separation ····· 20 dB
Stylus ····· Diamond
Stylus Pressure ····· 2.5 g
Load Impedance ····· 47 k ohm

STEREO TUNER : MODEL ST300

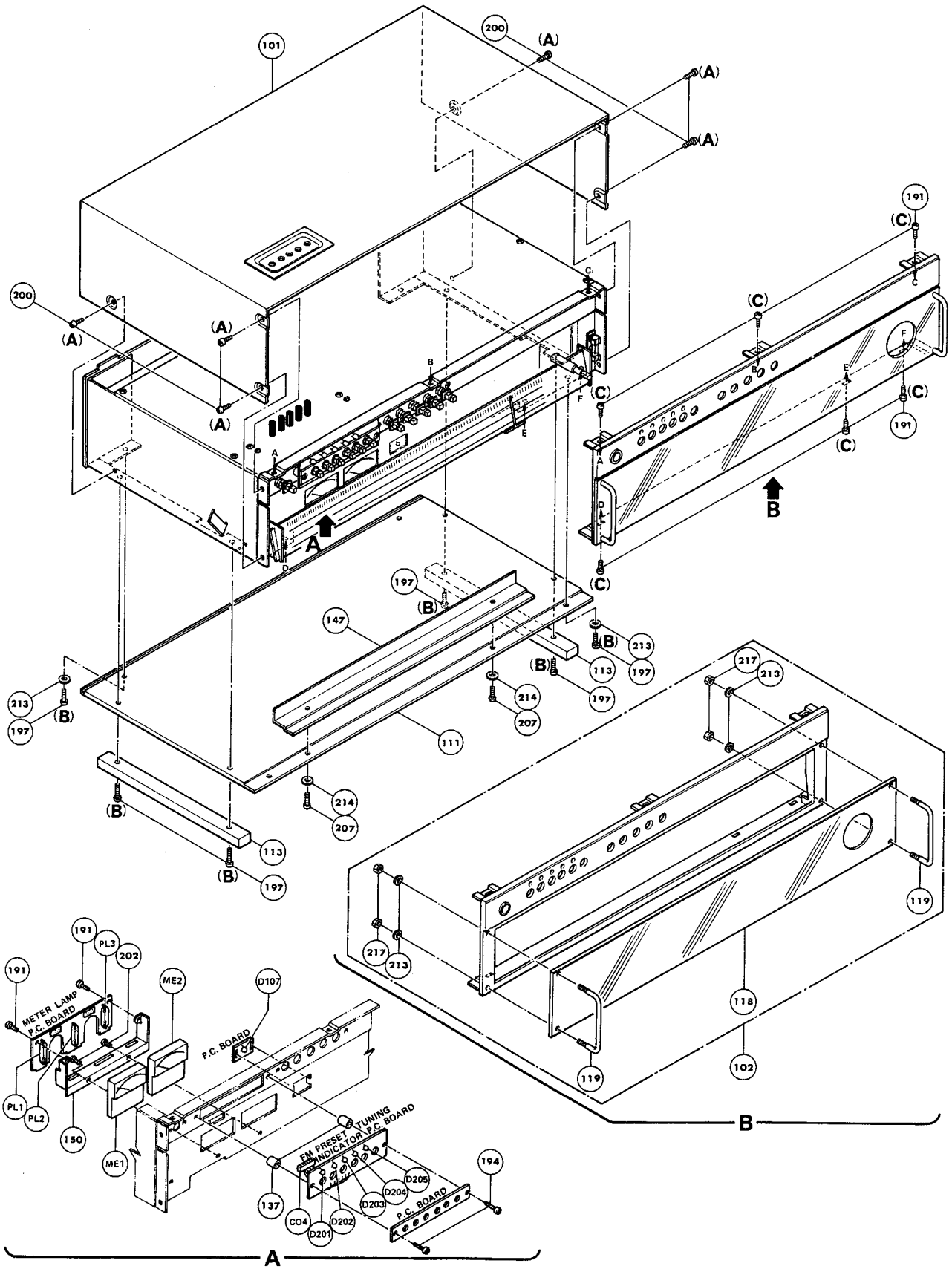
CHASSIS REMOVAL

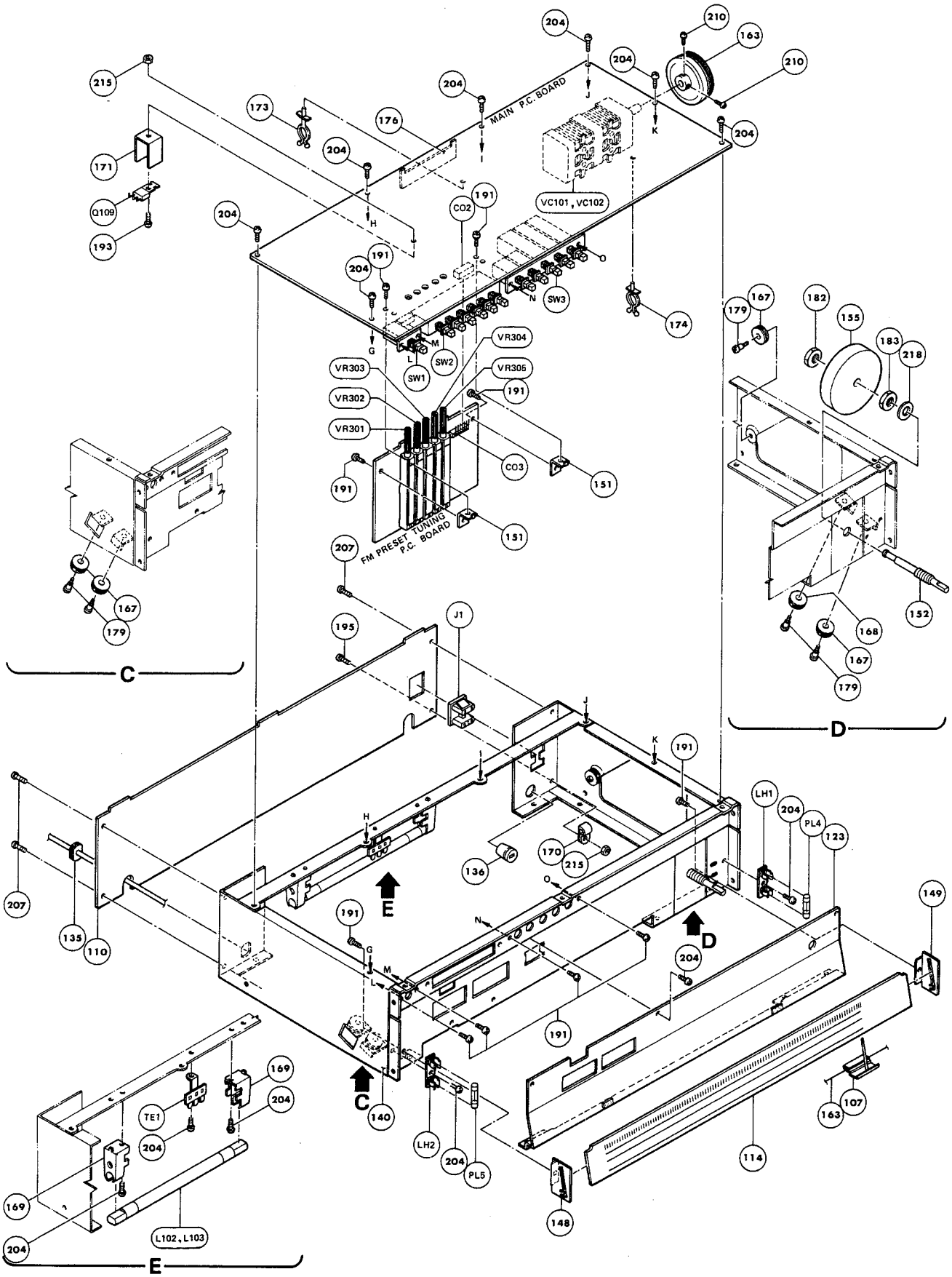
1. Remove 6 screws (A) mounting the cabinet top assembly and take up cabinet top assembly.
2. Remove 6 screws (B) mounting the cabinet bottom cover and take out cabinet bottom cover.
3. Remove 6 screws (C) mounting the chassis to the cabinet front.

GENERAL UNIT EXPLODED VIEW



GENERAL UNIT EXPLODED VIEW

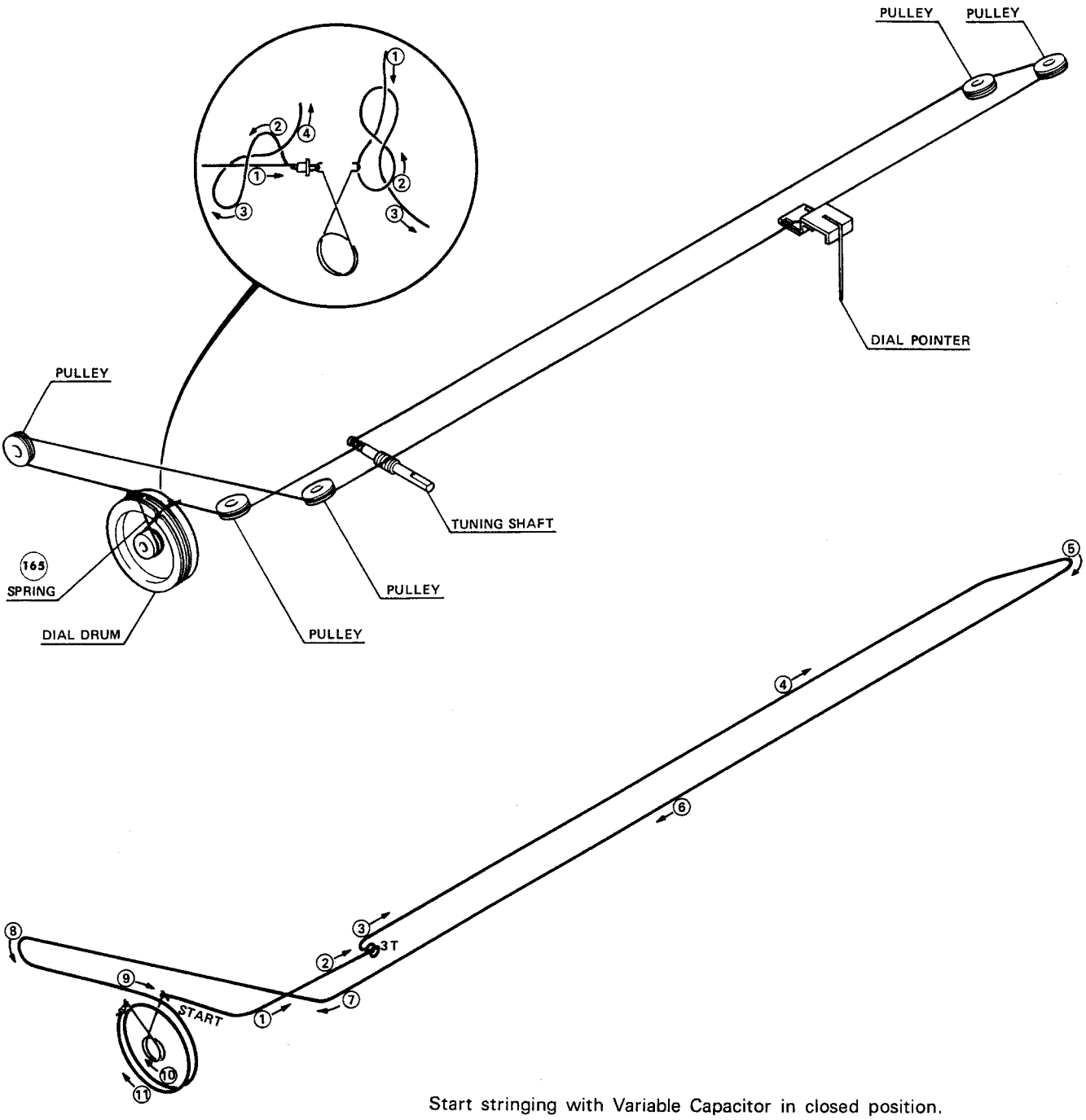



MAIN P.C. BOARD
FM PRESET TUNING P.C. BOARD
VC101, VC102
SW1
SW2
SW3
VR301
VR302
VR303
VR304
VR305
CO2
CO3
Q109
L102, L103
TE1
C
D
E

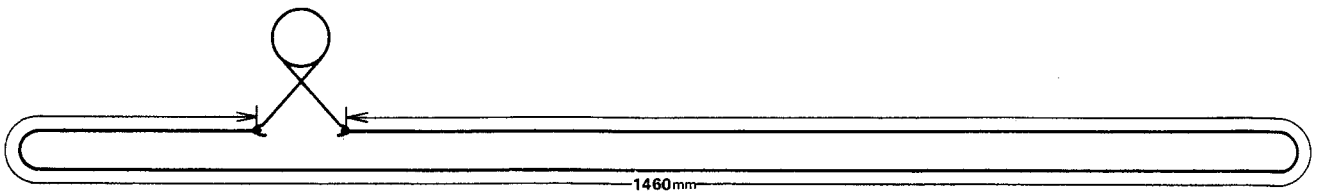
GENERAL UNIT MECHANICAL PARTS LIST

SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
AA	101	Cabinet Top Assembly	A314-ST300			
AB	102	Front Panel Assembly	A339-ST300			
AC	103	Knob Assembly, Tuning	A352-ST300			
BA	107	Dial Pointer Assembly	B631-ST300			
110	110	Cabinet Back Cover	1312-717082			
111	111	Cabinet Bottom Cover	1312-717089			
113	113	Foot	1319-7125			
114	114	Dial Scale	1331-717039			
118	118	Clear Panel	1339-717133			
119	119	Handle	1351-717001			
121	121	Push Button, Band Selector/FM Preset	1353-717057			
122	122	Push Button, Operate	1353-727058			
123	123	Dial Back Plate	2232-717015			
135	135	Bushing	2114-415027			
136	136	Bushing	2114-71192			
137	137	Spacer	2132-01702			
140	140	Chassis	2211-7153			
147	147	Bracket	2219-7385			
148	148	Bracket	2219-7386			
149	149	Bracket	2219-7387			
150	150	Bracket	2219-7388			
151	151	Bracket	2219-716			
152	152	Tuning Shaft Assembly	2602-067147			
155	155	Wheel	2617-7013			
163	163	Dial Drum	2611-7154			
165	165	Spring	2651-000082			
167	167	Pulley	2612-52271			
168	168	Pulley	2612-5221			
169	169	Ferrite Bar Antenna Holder	2241-5003			
170	170	Holder	2240-178			
171	171	Heat Sink	2222-7043			
173	173	Holder	2240-7050			
174	174	Holder	2240-7048			
176	176	Shield Plate	2216-160			
179	179	Special Screw	2320-11			
182	182	Hexagon Nut (M8)	2447-08227			
183	183	Special Nut	2440-7009			
191	191	Screw (3×6 mm)	2327-300629			
193	193	Screw (3×8 mm)	2327-300829			
194	194	Screw (3×16 mm)	2327-301629			
195	195	Screw (3×12 mm)	2327-301249			
197	197	Screw (4×10 mm)	2327-401029			
200	200	Screw (4×6 mm)	2327-400649			
202	202	Self-Tapping Screw (3×6 mm)	2347-300622			
204	204	Self-Tapping Screw (3×8 mm)	2347-300822			
207	207	Self-Tapping Screw (3×8 mm)	2347-300842			
210	210	Screw (3×8 mm)	2322-300829			
213	213	Flat Washer (4.2×10ϕ)	2401-0472			
214	214	Flat Washer (3.3×9ϕ)	2401-0314			
215	215	Hexagon Nut (M3)	2446-301C9			
217	217	Hexagon Nut (M4)	2446-401C9			
218	218	Flat Washer (10.3×35ϕ)	2401-1071			

DIAL CORD STRINGING



Start stringing with Variable Capacitor in closed position.



ALIGNMENT PROCEDURES

EQUIPMENT REQUIRED :

1. AM RF SIGNAL GENERATOR
2. FM RF SIGNAL GENERATOR
3. A.C.V.T.V.M.
4. FREQUENCY COUNTER
5. AM TEST LOOP
6. OSCILLOSCOPE
7. VOLT OHM METER
8. DISTORTION METER

GENERAL :

1. Signal input must be as low as possible to avoid overload and clipping.
2. Standard modulation is 400 Hz at 30% modulation (AM) and 1000 Hz at 75 kHz deviation (FM).

LW ALIGNMENT

Step	Set Signal Source To-	Set Radio Dial To-	Connect Output Indicator To-	Adjust-	Adjust For-
1	Press in LW push button to ON position.				
2	Connect AM test loop to AM RF signal generator leads. Place test loop enough to couple signal into the AM ferrite bar antenna (L103).				
3	455 kHz (AM modulation)	Tuning gang open	Connect A.C.V.T.V.M. and oscilloscope to TP1 (R128) and ground	T101, T102, T103	Maximum output on A.C.V.T.V.M. and at the same time clean wave on oscilloscope.
4	140 kHz (AM modulation)	Tuning gang closed	Connect A.C.V.T.V.M. and oscilloscope to TP1 (R128) and ground	L107	Maximum output on A.C.V.T.V.M. and at the same time clean wave on oscilloscope.
5	290 kHz (AM modulation)	Tuning gang open	Same as above	TC106	Same as above
6	Repeat steps 4 and 5 for optimum sensitivity.				
7	160 kHz (AM modulation)	Tune for signal	Connect A.C.V.T.V.M. and oscilloscope to TP1 (R128) and ground	L103	Maximum output on A.C.V.T.V.M. and at the same time clean wave on oscilloscope.
8	260 kHz (AM modulation)	Tune for signal	Same as above	TC103	Same as above
9	Repeat steps 7 and 8 for optimum sensitivity.				

MW ALIGNMENT

1	Press in MW push button to ON position.				
2	Connect AM test loop to AM RF signal generator leads. Place test loop enough to couple signal into the AM ferrite bar antenna (L102).				
3	525 kHz (AM modulation)	525 kHz	Connect A.C.V.T.V.M. and oscilloscope to TP1 (R128) and ground	L106	Maximum output on A.C.V.T.V.M. and at the same time clean wave on oscilloscope.
4	1600 kHz (AM modulation)	1600 kHz	Same as above	TC105	Same as above
5	Repeat steps 3 and 4 for optimum sensitivity.				
6	600 kHz (AM modulation)	Tune for signal	Connect A.C.V.T.V.M. and oscilloscope to TP1 (R128) and ground	L102	Maximum output on A.C.V.T.V.M. and at the same time clean wave on oscilloscope.
7	1400 kHz (AM modulation)	Tune for signal	Same as above	TC102	Same as above
8	Repeat steps 6 and 7 for optimum sensitivity.				

SW ALIGNMENT

1	Press in SW push button to ON position.				
2	Connect AM RF signal generator to the AM external antenna terminals.				
3	3.7 MHz (AM modulation)	Tuning gang closed	Connect A.C.V.T.V.M. and oscilloscope to TP1 (R128) and ground	L105	Maximum output on A.C.V.T.V.M. and at the same time clean wave on oscilloscope.
4	12.5 MHz (AM modulation)	Tuning gang open	Same as above	TC104	Same as above
5	Repeat steps 3 and 4 for optimum sensitivity.				
6	4 MHz (AM modulation)	Tune for signal	Connect A.C.V.T.V.M. and oscilloscope to TP1 (R128) and ground	L101	Maximum output on A.C.V.T.V.M. and at the same time clean wave on oscilloscope.

Step	Set Signal Source To-	Set Radio Dial To-	Connect Output Indicator To-	Adjust-	Adjust For-
7	11 MHz (AM modulation)	Tune for signal	Same as above	TC101	Same as above
8	Repeat steps 6 and 7 for optimum sensitivity.				

FM ALIGNMENT

Step	Set Signal Source To-	Set Radio Dial To-	Connect Output Indicator To-	Adjust-	Adjust For-
1	Press in FM push button to ON position.				
2			Volt ohm meter across R119 (3.3 k ohm)	T104	Zero volt reading on volt ohm meter.
3	Connect FM RF signal generator to the FM external antenna terminals.				
4	98 MHz (Unmodulation)	98 MHz		T1	Maximum needle deflection tuning meter.
5	Adjust step 2 once again.				
6	98 MHz 1mV (60dB) (FM modulation)	Near 98 MHz	Volt ohm meter across R119 (3.3 k ohm)	Tuning Control	Zero volt reading on volt ohm meter.
7	Same as above	Preset point	Distortion meter across P1 (Lch)	T105	Minimum reading on distortion meter.
8	88 MHz (FM modulation)	88 MHz	A.C.V.T.V.M. and oscilloscope across P1 (Lch)	VR104	Maximum output on A.C.V.T.V.M. and at the same time clean wave on oscilloscope.
9	109 MHz (FM modulation)	109 MHz	Same as above	VR103	Same as above
10	Repeat steps 8 and 9 for optimum sensitivity.				

FM PRESET FREQUENCY METER ADJUSTMENT

Step	Set Signal Source To-	Set Radio Dial To-	Adjust-	Adjust For-
1	Press in FM push button to ON position.			
2	Connect FM RF signal generator across FM external antenna terminals.			
3	104 MHz 1mV (60dB) (FM modulation)	104 MHz	VR105	To indicate 104 on FM preset frequency meter.

FM MULTIPLEX ADJUSTMENT

Step	Connect Output Indicator To-	Set Radio Dial To-	Adjust-	Adjust For-
1	Press in FM STEREO push button to ON position.			
2	Frequency counter to TP2(LP107) and ground	Quieting point	VR102	19 kHz ± 50 Hz

FM PRESET TUNING MINIMUM ADJUSTMENT

Step	Set Signal Source To-	Connect Output Indicator To-	Adjust-	Adjust For-
1	Press in FM push button to ON position.			
2	Set the VR301 ~ VR305 to the minimum frequency position.			
3	Press in U1 push button to ON position.			
4	Connect FM RF signal generator across FM external terminals.			
5	87.3 MHz (FM modulation)	A.C.V.T.V.M. and oscilloscope across P1 (Lch)	VR106	Maximum output on A.C.V.T.V.M. and at the same time clean wave on oscilloscope.

TRANSISTOR/IC ELEMENTS VOLTAGE CHART

Volts

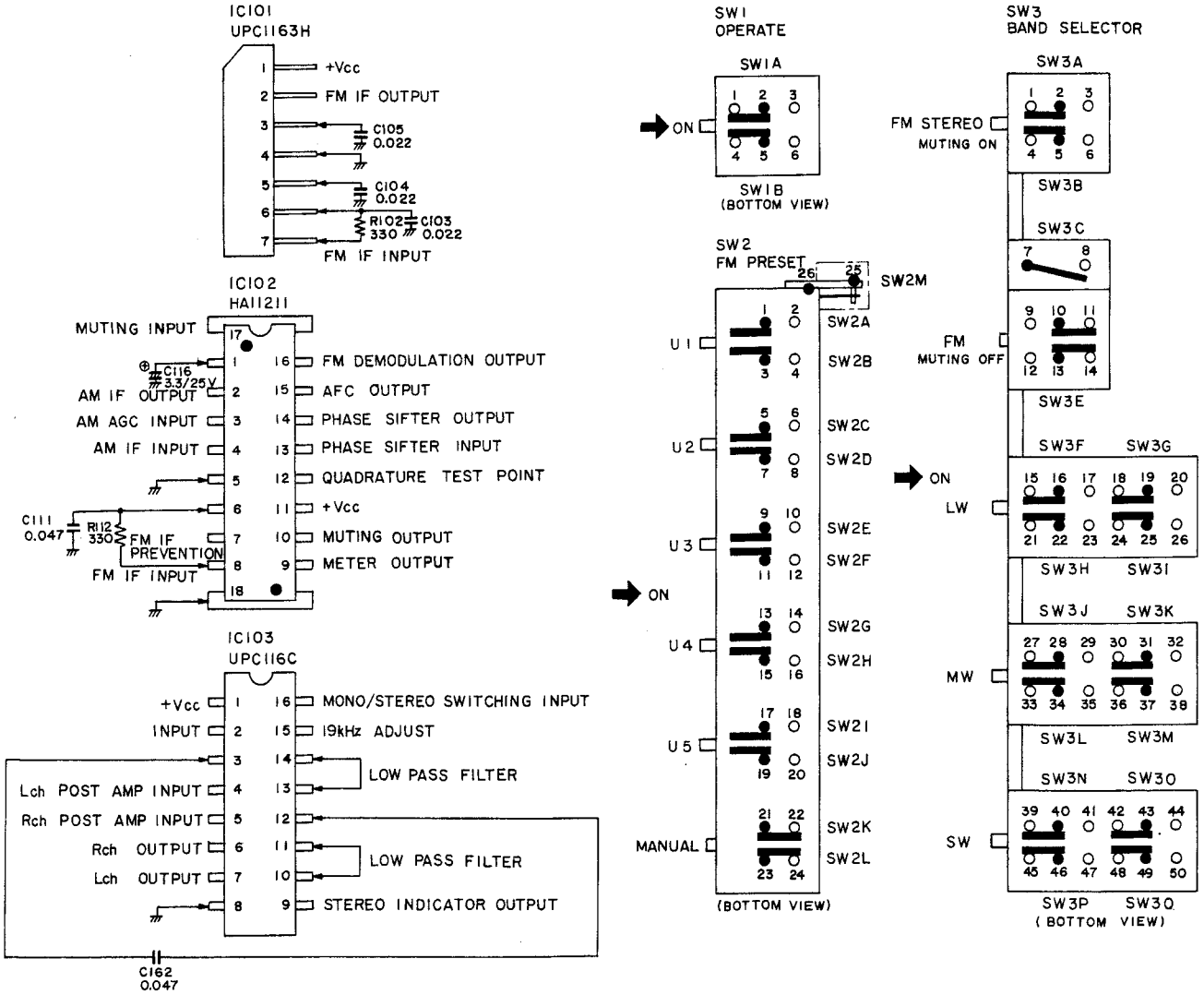
Q' NO.	Q101	Q102	Q103	Q104	Q105	Q106	Q107	Q109	Q110
MODE	FM	AM	FM	FM ST.	FM/AM				
BASE	1.0	1.1	2.3	0	11.8	3.6	0,7	13.5	46.2
EMIT.	0.5	0.5	2.0	0	12.1	3.0	0	12.9	47
COLL.	10.6	9.8	12.5	9.0	1.8	3.0	0	22.2	31.7

Volts

TERMINAL NO.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
IC101		12.6	11.7	1.0	0	1.7	4.1	4.1	—	—	—	—	—	—	—	—	—	—
IC102	FM	2.7	0	3.4	0.7	0	2.0	2.0	2.0	0	4.6	12.8	5.7	5.7	5.7	5.5	5.8	0.2
	AM	2.6	0	3.4	0.7	0	2.6	3.1	2.6	0	4.8	12.9	5.7	5.7	5.7	6.2	6.5	0.2
IC103	FMST.	12.7	2.3	5.5	10.5	10.5	6.0	5.8	0	11.1	2.3	2.3	2.3	2.3	2.3	0.1	9.0	—

NOTES:

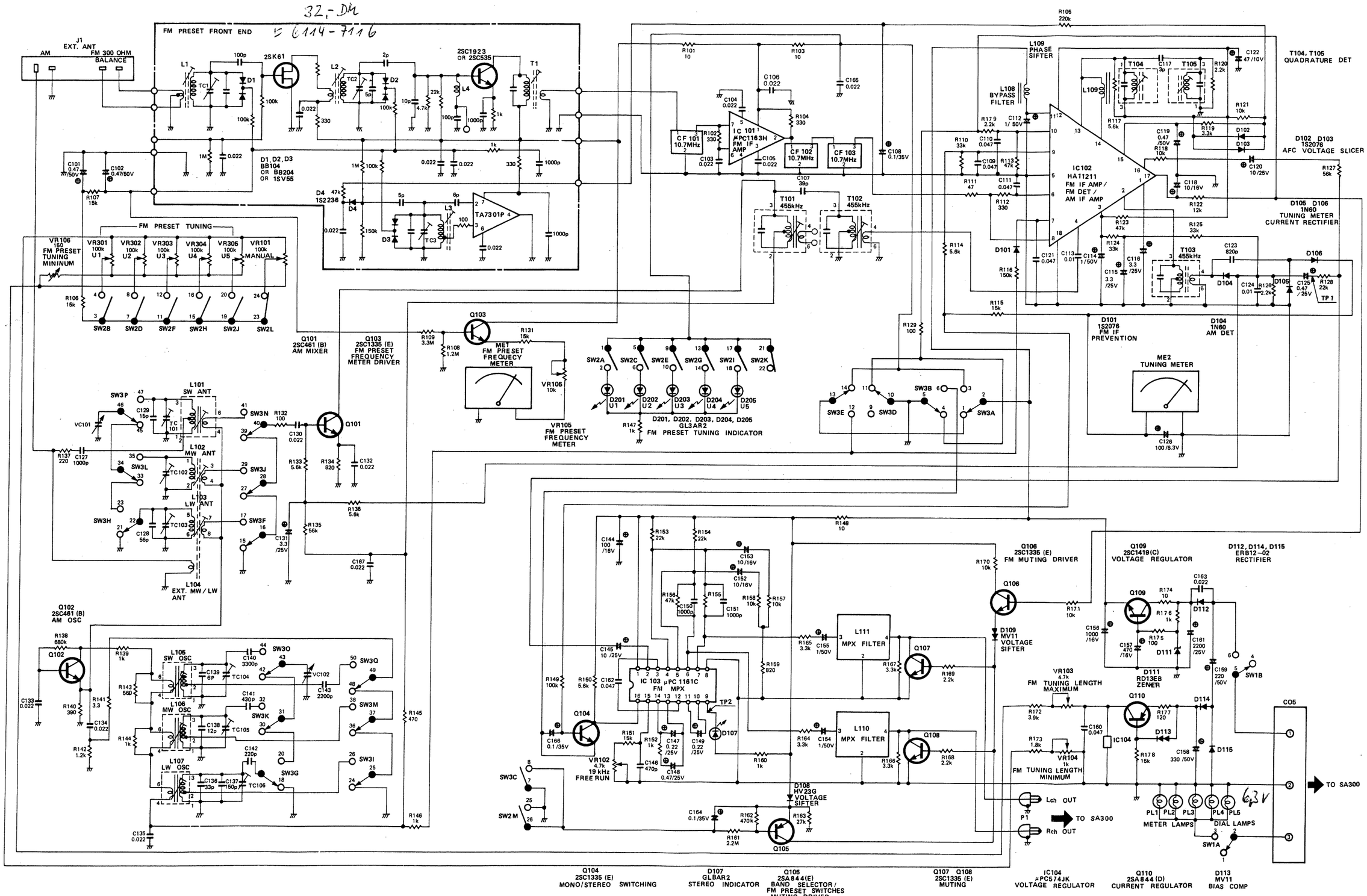
1. ALL RESISTANCES ARE 1/4W UNLESS OTHERWISE NOTED. VALUES ARE IN OHMS.
   K = 1000, M = 1000K
2. ALL CAPACITANCES VALUES ARE IN MF UNLESS OTHERWISE NOTED. P = MMF
3. ALL VOLTAGES READING FROM CHASSIS ARE MEASURED WITH V.T.V.M. UNDER NO SIGNAL CONDITIONS.
4. PRESET SWITCH (SW2) IS IN MANUAL POSITION.
5. BAND SELECTOR SWITCH (SW3) IS IN FM POSITION.



Sender laufen weg

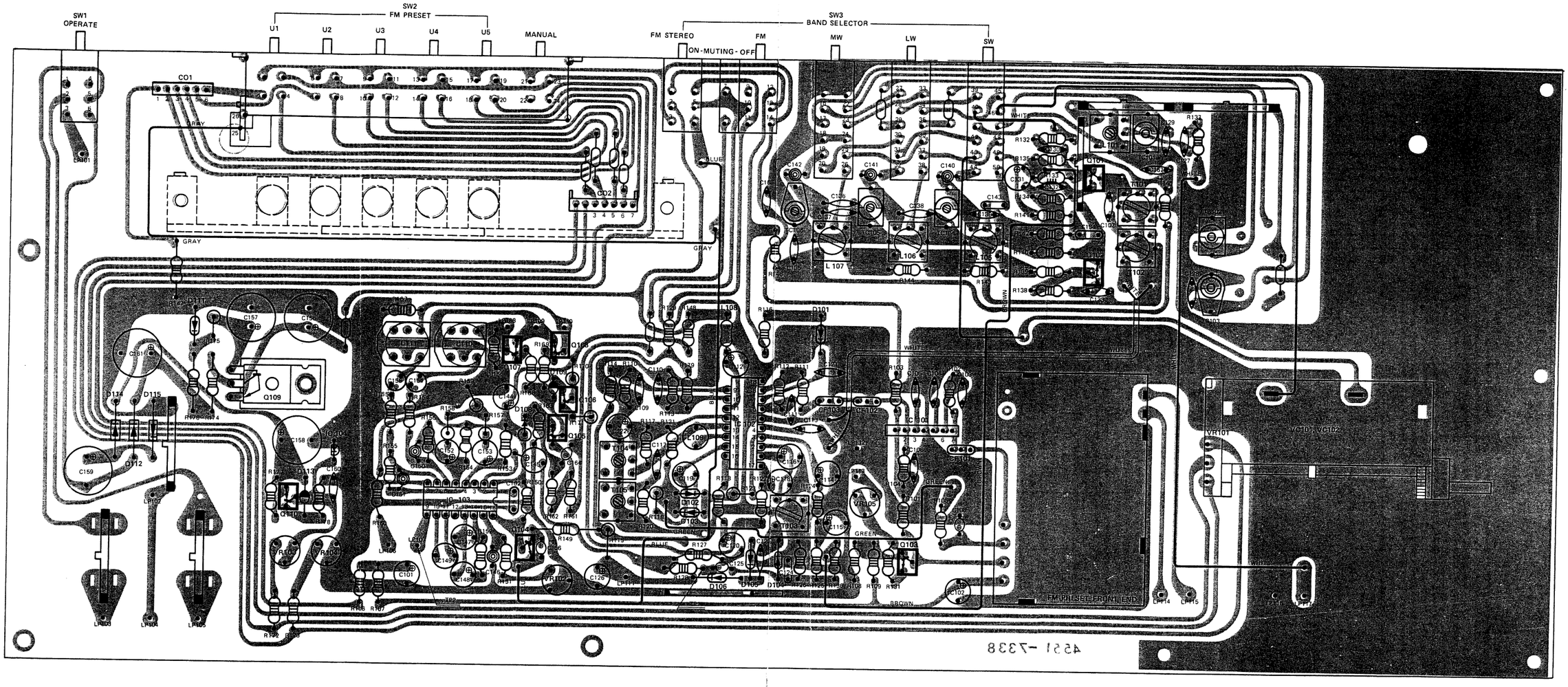
SCHEMATIC DIAGRAM

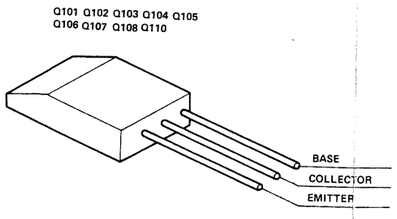
32,- DM

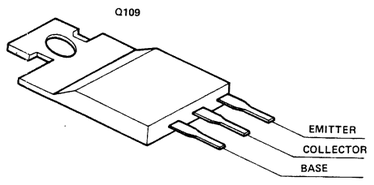

FM PRESET FRONT END ≡ 6114-7116
J1 EXT. ANT
AM
FM 300 OHM BALANCE
2SK61
2SC1923 OR 2SC535
D1, D2, D3 BB104 OR BB204 OR 1SV55
D4 1S2236
TA7301P
FM PRESET TUNING
VR106 FM PRESET TUNING MINIMUM
VR301 VR302 VR303 VR304 VR305 VR101 MANUAL
SW2B SW2D SW2F SW2H SW2J SW2L
Q101 2SC461 (B) AM MIXER
Q103 2SC1335 (E) FM PRESET FREQUECY METER DRIVER
MET FM PRESET FREQUECY METER
VR105 FM PRESET FREQUECY METER
SW2A SW2C SW2E SW2G SW2I SW2K
D201 U1 D202 U2 D203 U3 D204 U4 D205 U5
D201, D202, D203, D204, D205 GL3AR2 FM PRESET TUNING INDICATOR
L101 SW ANT
L102 MW ANT
L103 LW ANT
L104 EXT. MW / LW ANT
SW3P SW3N SW3L SW3J SW3H SW3F
Q102 2SC461 (B) AM OSC
L105 SW OSC
L106 MW OSC
L107 LW OSC
SW3O SW3Q SW3K SW3M SW3G SW3I
IC 101 μPC1163H FM IF AMP
CF 101 10.7MHz
CF 102 10.7MHz
CF 103 10.7MHz
IC 103 μPC 1161C FM MPX
L111 MPX FILTER
L110 MPX FILTER
Q107
Q108
D108 HV23G VOLTAGE SIFTER
SW3C SW2M
VR102 4.7k 19 kHz FREE RUN
Q104 2SC1335 (E) MONO/STEREO SWITCHING
D107 GL8AR2 STEREO INDICATOR
Q105 2SA844(E) BAND SELECTOR / FM PRESET SWITCHES MUTING DRIVER
Q107 Q108 2SC1335 (E) MUTING
L109 PHASE SIFTER
L108 BYPASS FILTER
IC102 HA11211 FM IF AMP / FM DET / AM IF AMP
T104, T105 QUADRATURE DET
T101 455kHz
T102 455kHz
T103 455kHz
D102 D103 1S2076 AFC VOLTAGE SLICER
D105 D106 1N60 TUNING METER CURRENT RECTIFIER
D101 1S2076 FM IF PREVENTION
D104 1N60 AM DET
ME2 TUNING METER
SW3B SW3E SW3D SW3A
Q106 2SC1335 (E) FM MUTING DRIVER
Q109 2SC1419(C) VOLTAGE REGULATOR
D112, D114, D115 ERB12-02 RECTIFIER
D109 MV11 VOLTAGE SIFTER
D111 RD13EB ZENER
VR103 4.7k FM TUNING LENGTH MAXIMUM
VR104 1k FM TUNING LENGTH MINIMUM
IC104 μPC574JK VOLTAGE REGULATOR
Q110 2SA844 (D) CURRENT REGULATOR
D113 MV11 BIAS COMP
Lch OUT
Rch OUT
P1
TO SA300
PL1 PL2 PL3 PL4 PL5
METER LAMPS
DIAL LAMPS
SW1A SW1B
CO5
TP1
TP2

MC-Service

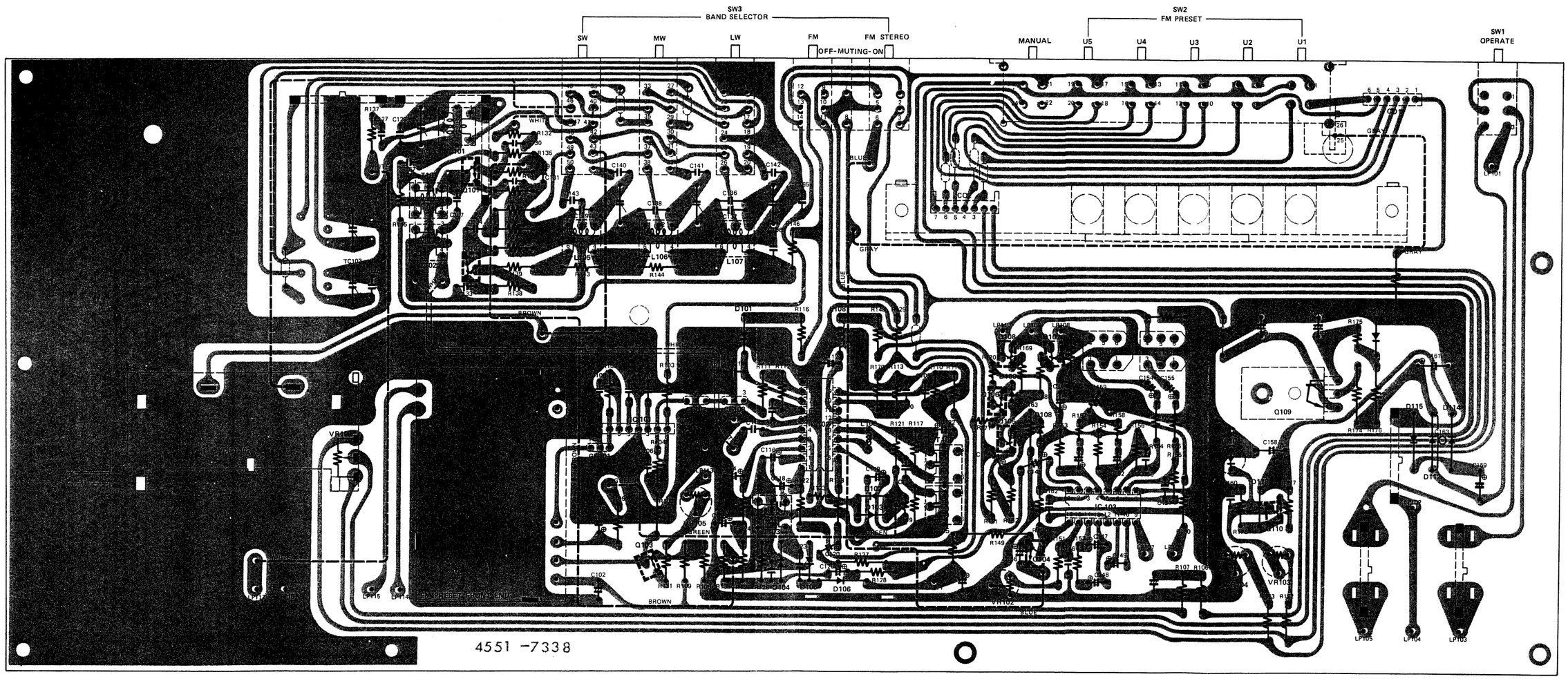
MAIN P.C. BOARD COMPONENT SIDE



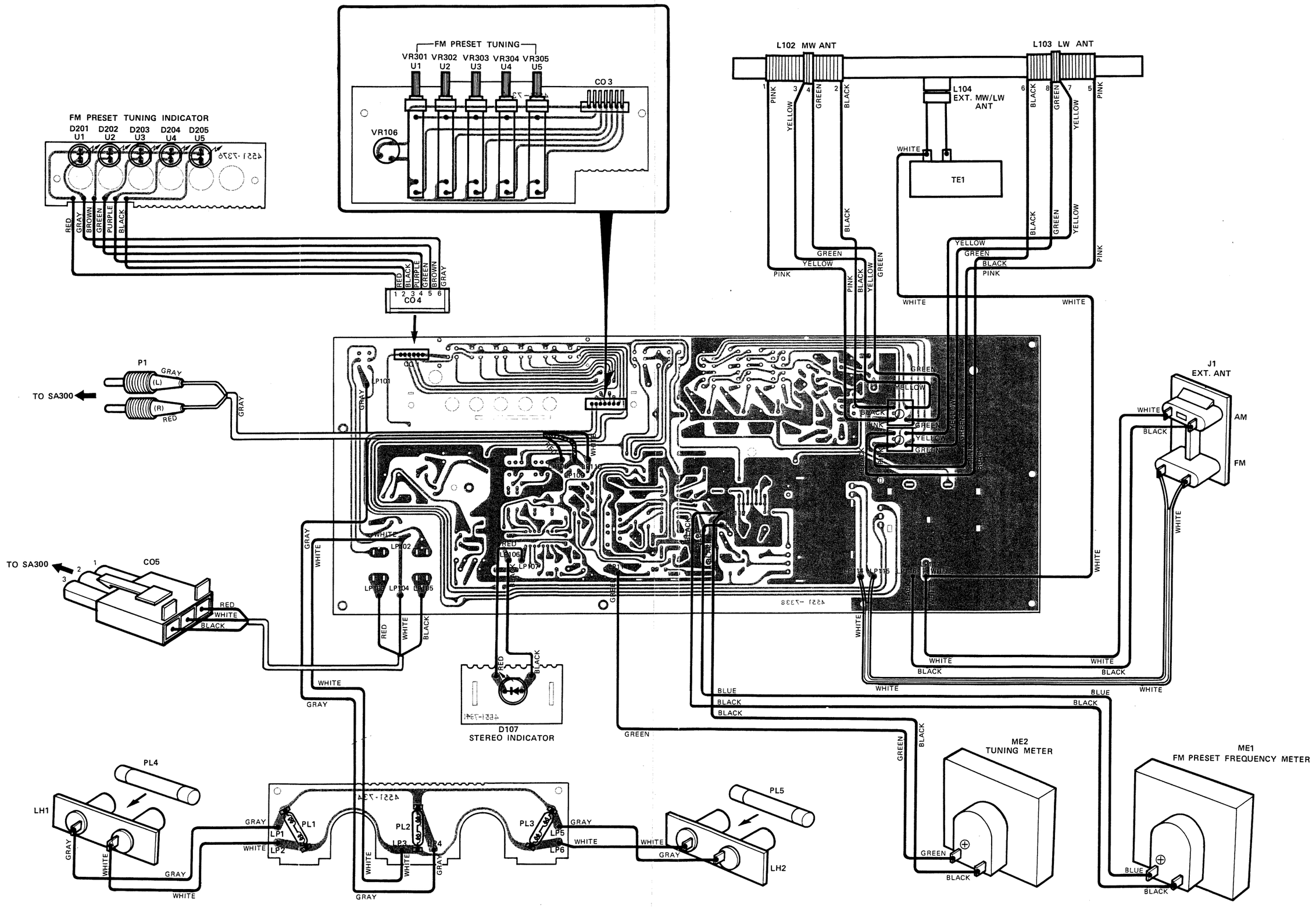




MAIN P.C. BOARD CIRCUIT SIDE



WIRING DIAGRAM



ELECTRICAL PARTS LIST

SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
	RESISTORS					
631	VR102	Variable Resistor, 4.7 k ohm, 19 kHz Free Run Adjust	5101-4727174			
690	VR103	Variable Resistor, 4.7 k ohm, FM Tuning Length Adjust, Maximum	5101-4727174			
689	VR104	Variable Resistor, 1 k ohm, FM Tuning Length Adjust, Minimum	5101-1027274			
599	VR105	Variable Resistor, 10 k ohm, FM Preset Frequency Meter Adjust	5101-1037374			
723	VR106	Variable Resistor 150 ohm, FM Preset Tuning Minimum Adjust	5101-1517474			
718	VR301, 302, 303, 304, 305	Variable Resistor, 100 k ohm, FM Preset Tuning	5103-1047012			
	CAPACITORS					
581	C101, 102, 119	0.47MF 50V Electrolytic	5345-4740215			
597	C103, 104, 105, 106, 130, 132, 133, 135, 163, 165, 167	0.022MF 50V Ceramic	5361-223ZF			
532	C107	39PF 50V Ceramic	5361-390JCH			
578	C108, 164, 166	0.1MF 35V Tantalum Electrolytic	5343-1040658			
598	C109, 110, 111, 121, 160	0.047MF 50V Ceramic	5361-473ZF			
582	C112, 114, 154, 155	1MF 50V Electrolytic	5345-1050215			
596	C113	0.01MF 50V Ceramic	5361-103ZF			
583	C115, 116, 131	3.3MF 25V Electrolytic	5345-3350214			
594	C117	3PF 50V Ceramic	5361-030094			
584	C118, 152, 153	10MF 16V Electrolytic	5345-1060213			
585	C120, 145	10MF 25V Electrolytic	5345-1060214			
586	C122	47MF 10V Electrolytic	5345-4760212			
595	C123	820PF 50V Ceramic	5361-821KB			
591	C124	0.01MF 50V Mylar	5354-103K1HM			
579	C125, 148	0.47MF 25V Electrolytic	5345-474D0951			
587	C126	100MF 6.3V Electrolytic	5345-1070211			
539	C127	1000PF 50V Ceramic	5361-102KB			
537	C128	56PF 50V Ceramic	5361-560KSL			
534	C129	15PF 50V Ceramic	5362-150JCH			
526	C134	0.022MF 50V Mylar	5354-223J1HM			
536	C136	33PF 50V Ceramic	5361-330KSL			
538	C137	150PF 50V Ceramic	5361-151KSL			
535	C138	12PF 50V Ceramic	5361-120KSL			
533	C139	6PF 50V Ceramic	5361-060DCH			
528	C140	3300PF 50V Stylor	5355-332J1HS			
529	C141	430PF 50V Stylor	5355-431J1HS			
530	C142	220PF 50V Stylor	5355-221J1HS			
527	C143	2200PF 50V Mylar	5354-222J1HM			
638	C144	100MF 16V Electrolytic	5345-1070213			
644	C146	470PF 50V Stylor	5355-471J1HS			
633	C147, 149	0.22MF 25V Electrolytic	5345-224D0951			
645	C150, 151	1000PF 50V Stylor	5355-102J1HS			
695	C156	1000MF 16V Electrolytic	5345-1080213			
696	C157	470MF 16V Electrolytic	5345-4770213			
694	C158	330MF 50V Electrolytic	5345-3370215			
693	C159	220MF 50V Electrolytic	5345-2270215			
692	C161	2200MF 25V Electrolytic	5345-2280214			
642	C162	0.047MF 50V Mylar	5354-473J1HM			
518	VC101, 102	Variable Capacitor (w/VR101)	5312-7116			
515	TC101, 102, 104, 105	Trimmer Capacitor	5371-36			
516	TC103, 106	Trimmer Capacitor	5371-34			

SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
	SEMICONDUCTORS					
501	Q101, 102	Transistor, AM Mixer, AM Osc.	5613-461(B)			
563	Q103, 104, 106, 107, 108	Transistor, FM Preset Frequency Meter Driver, Mono./Stereo Switching, FM Muting Driver, Muting	5613-1335(E)			
623	Q105	Transistor, Band Selector/FM Preset Switches Muting Driver	5611-844(E)			
681	Q109	Transistor, Voltage Regulator	5613-1419(C)			
682	Q110	Transistor, Current Regulator	5611-844(D)			
562	IC101	Integrated Circuit, FM IF Amp.	5652-UPC1163H			
561	IC102	Integrated Circuit, FM IF Amp./FM Det./ AM IF Amp.	5652-HA11211			
621	IC103	Integrated Circuit, FM Multiplex	5652-UPC1161C			
684	IC104	Integrated Circuit, Voltage Regulator	5652-UPC574JK			
566	D101, 102, 103	Diode, FM IF Prevention, AFC Voltage Slicer	5631-1S2076	1N4148		
565	D104, 105, 106	Diode, AM Det., Tuning Meter Current Rectifier	5631-1N60	AA138		
627	D107, 201, 202, 203, 204, 205	Light Emitting Diode, Stereo Indicator, FM Rreset Tuning Indicator (Red)	5637-GL3AR2			
625	D108	Varistor, Voltage Sifter	5641-HV23G	1N4148?		
624	D109, 113	Varistor, Voltage Sifter, Bias Compensation	5641-MV11	1,4V ?		
685	D111	Zener Diode	5635-RD13EB3			
687	D112, 114, 115	Diode, Rectifier	5632-ERB12-02	1N4007		
	COILS AND TRANSFORMERS					
513	L101	Coil, SW Antenna	5943-70122			
503	L102, 103	MW/SW Ferrite Bar Antenna	5913-62			
522	L104	Coil, Ext. MW/LW Antenna	5995-7026			
511	L105	Coil, SW Osc.	5923-70128			
510	L106	Coil, MW Osc.	5923-70511			
509	L107	Coil, LW Osc.	5923-70611			
570	L108	Coil, Bypass Filter	5995-470225			
569	L109	Coil, Phase Sifter	5995-220136			
629	L110, 111	L.C. Component, Multiplex Filter	5214-6			
505	T101, 102	Transformer, AM IF	5553-7017			
506	T103	Transformer, AM IF	5553-7027			
568	T104, 105	Transformer, Quadrature Det.	5563-7019			
	MISCELLANEOUS					
574		FM Preset Front End Assembly	6114-7116	32-DM		
571	CF101, 102, 103	Ceramic Filter, FM IF (10.7 MHz)	5671-7117Z			
719	SW1A, B	Push Switch, Operate	4431-01027146			
572	SW2A-L	Push Switch, FM Preset	4431-06127147			
520	SW3A-Q	Push Switch, Band Selector	4431-05167142			
575	ME1	Meter, FM Preset Frequency	4323-7133			
576	ME2	Meter, Tuning	4323-7233			
724	PL1, 2, 3	Lamp, Meter Illuminator	5731-0637224			
725	PL4, 5	Lamp, Dial Illuminator	5731-0637325	6,3V/0,25A		Wie Anl. - 3/4
720	LH1, 2	Lamp Holder	4472-7111			
726	J1	DIN Jack, FM/AM Ext. Antenna	4474-100			
739	TE1	Terminal	4214-7012			
730	CO1	Connector (6-Pin, Male)	4443-067114			
729	CO2	Connector (7-Pin, Female)	4443-07418			
728	CO3	Connector (7-Pin, Male)	4443-077149			
731	CO4	Connector with Leadwire (6-Pin, Female)	4163-70427			
721	CO5	Connector with Leadwire, Power Supply	4163-70145			
722	P1	Tuner Output Cord with Plug	4161-7381			

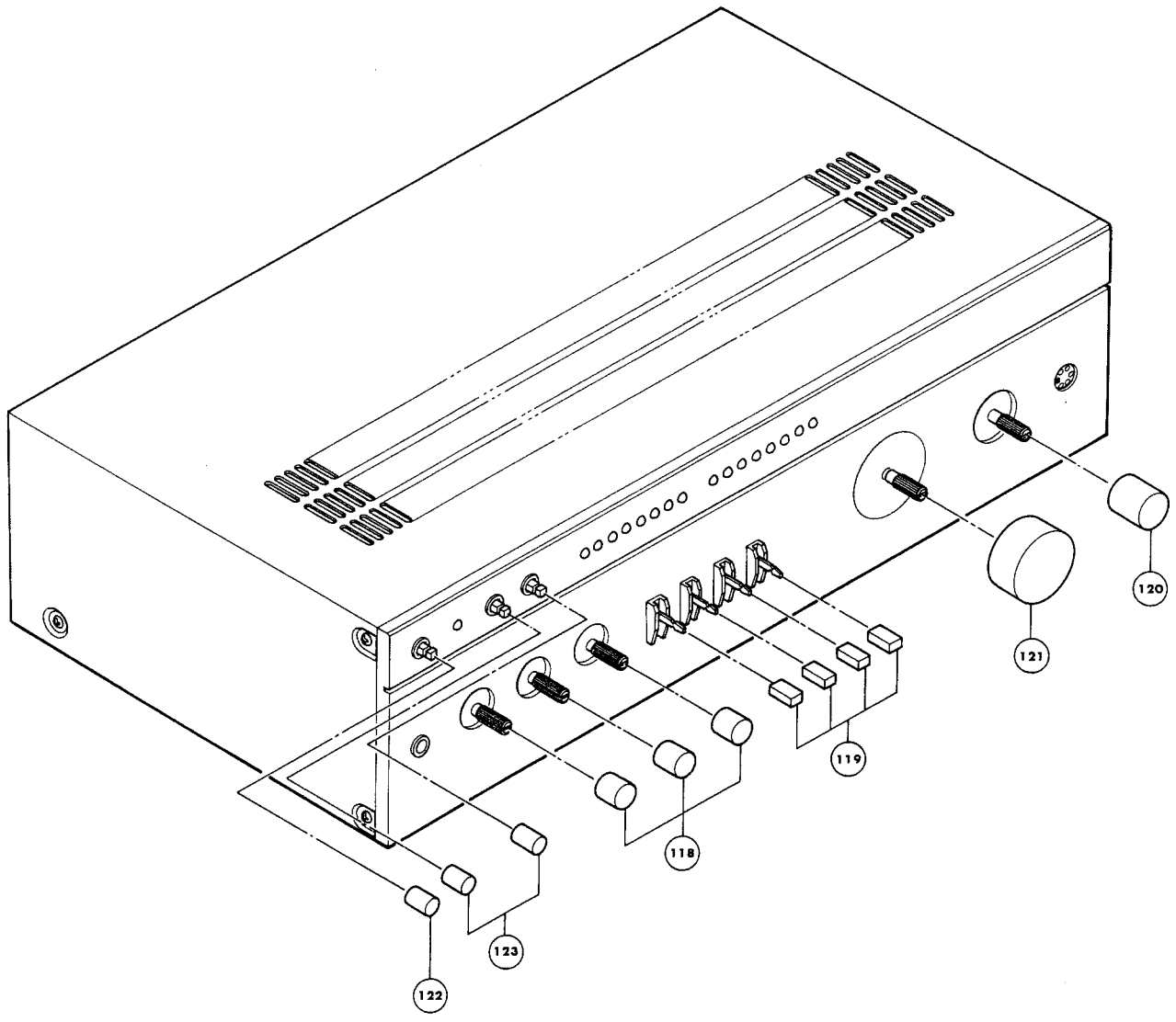
MC-Service

STEREO AMPLIFIER : MODEL SA300

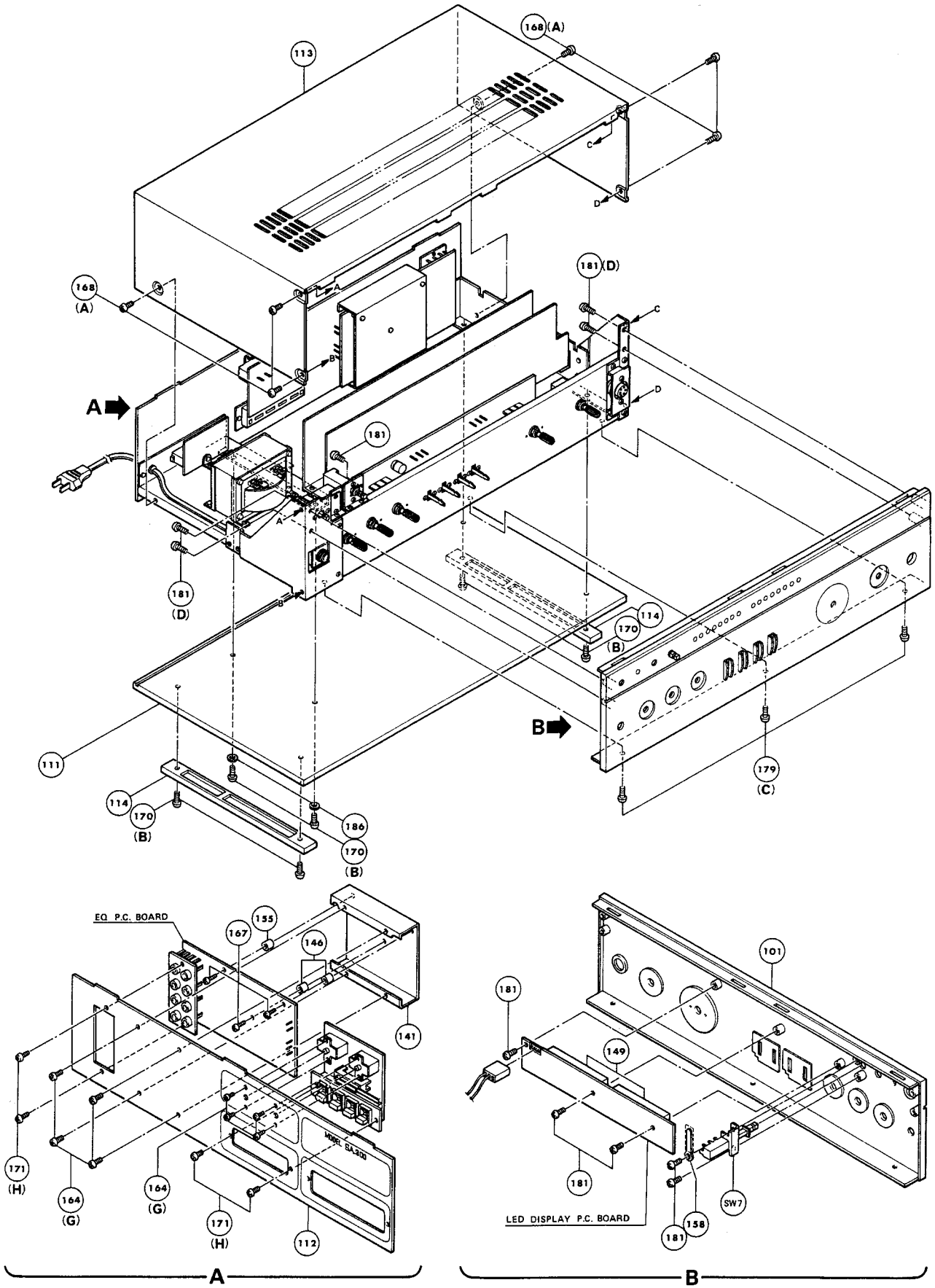
CHASSIS REMOVAL

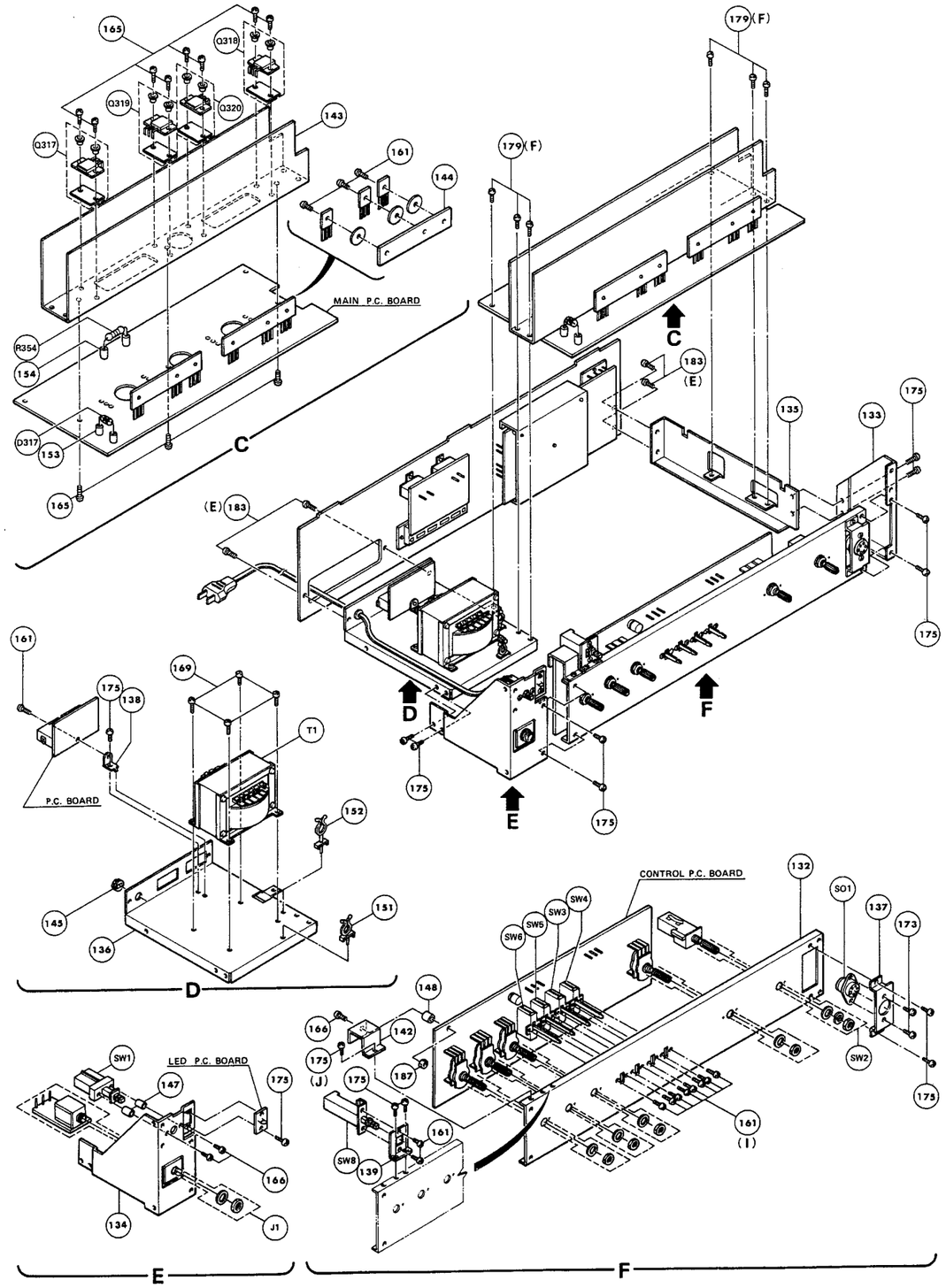
1. Remove cabinet top cover by unscrewing six screws (A).
2. Remove cabinet bottom cover by unscrewing six screws (B) four of which fix bottom cover together with two cabinet feet.
3. Pull out nine knobs of bass, treble, balance, hi filter, lo filter, TB, loudness, volume and function.
4. Remove front panel by unscrewing three self-tapping screws (C) and four self-tapping screws (D).
5. Remove cabinet back cover by unscrewing four self-tapping screws (E).
6. Remove main P.C. board by unscrewing six self-tapping screws (F).
7. Remove equalizer P.C. board by unscrewing four screws (G) and two screws (H).
8. Remove speaker terminal P.C. board by unscrewing four screws (G) and two screws (H).
9. Remove control P.C. board by unscrewing eight screws (I) mounting four lever switches and one self-tapping screw (J) and removing four nuts which are attached to variable resistors.

GENERAL UNIT EXPLODED VIEW



GENERAL UNIT EXPLODED VIEW

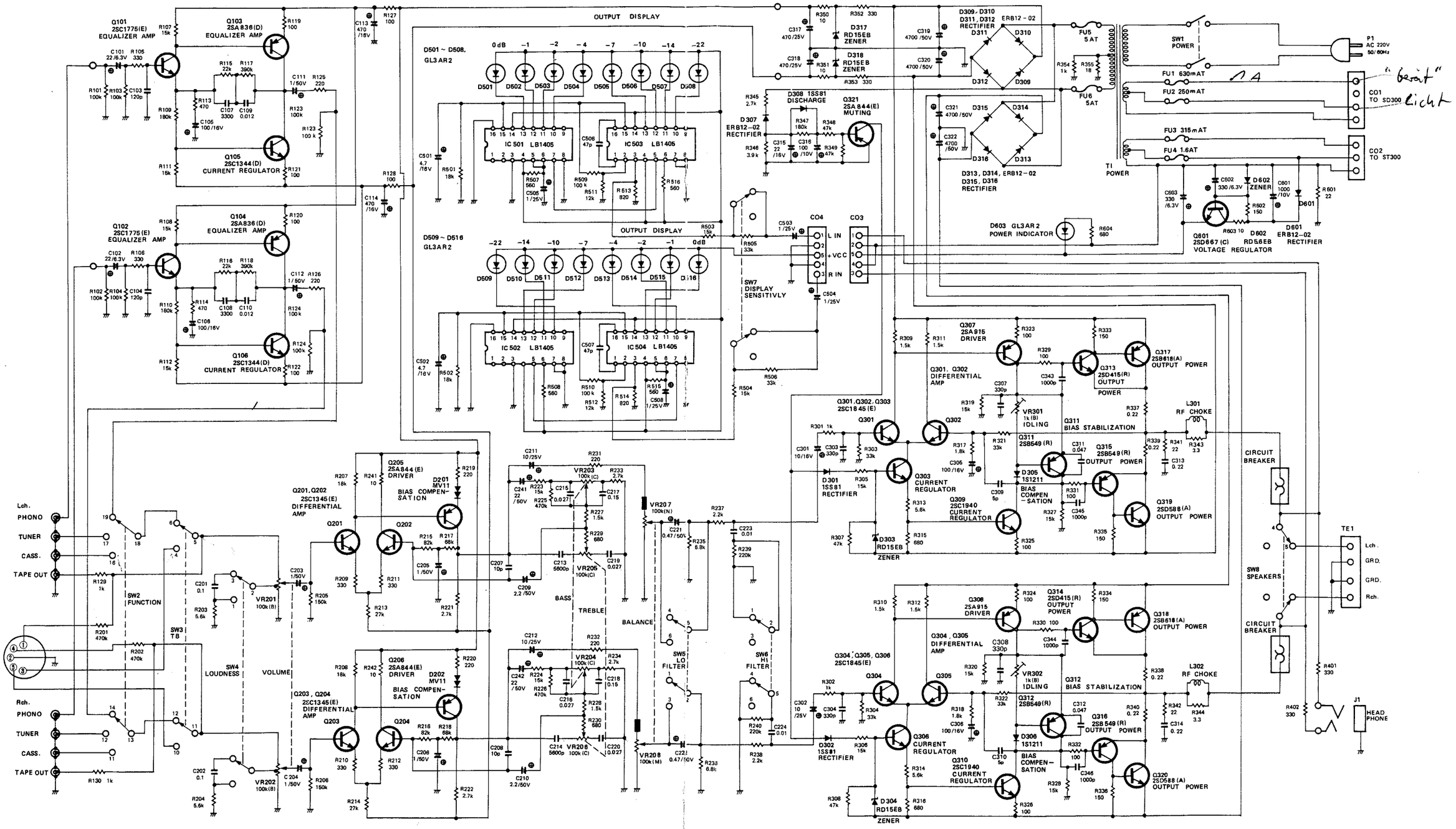




GENERAL UNIT MECHANICAL PARTS LIST

SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
AA	101	Front Panel Assembly	A339-SA300			
111	111	Cabinet Bottom Cover	1312-717085			
112	112	Cabinet Back Cover	1312-717088			
112A	112	(England Version)	1312-727088			
113	113	Cabinet Top Cover	1314-717043			
114	114	Cabinet Foot	1319-7125			
118	118	Knob, Bass, Treble, Balance	1352-717083			
119	119	Knob, High Filter, Low Filter, Ext. Source, Loudness	1352-717084			
120	120	Knob, Function	1352-717085			
121	121	Knob, Volume	1352-717086			
122	122	Push Button, Power	1353-727058			
123	123	Push Button, Speaker, L.E.D. Display	1353-717057			
132	132	Chassis	2211-7149			
133	133	Bracket	2219-7369			
134	134	Bracket	2219-7370			
135	135	Bracket	2219-7371			
136	136	Bracket	2219-7372			
137	137	Bracket	2219-7373			
138	138	Bracket	2219-7170			
139	139	Bracket	2219-7424			
141	141	Shield Plate	2216-7078			
142	142	Shield Plate	2216-7079			
143	143	Heat Sink	2222-7054			
144	144	Heat Sink	2222-7060			
145	145	Bushing	2114-415027			
145A	145	(England Version)	2114-71155			
146	146	Spacer	2132-01405			
147	147	Spacer	2132-01702			
148	148	Spacer	2132-01401			
149	149	Spacer	2132-7060			
151	151	Holder	2240-7049			
152	152	Holder	2240-7050			
153	153	Spacer	2132-7048			
154	154	Spacer	2132-5049			
155	155	Pierce Boss	2363-5013			
158	158	Fixing Bracket	2218-7001			
161	161	Screw (3×6 mm)	2327-300629			
164	164	Screw (3×8 mm)	2327-300849			
165	165	Screw (3×8 mm)	2327-300829			
166	166	Screw (3×14 mm)	2327-301429			
167	167	Screw (3×10 mm)	2327-301029			
168	168	Screw (4×6 mm)	2327-400649			
169	169	Screw (4×8 mm)	2327-400829			
170	170	Screw (4×16 mm)	2327-401629			
171	171	Screw (3×10 mm)	2327-301049			
173	173	Screw (2.6×6 mm)	2322-260641			
175	175	Self-Tapping Screw (3×6 mm)	2347-300622			
179	179	Self-Tapping Screw (3×8 mm)	2347-300822			
181	181	Self-Tapping Screw (3×8 mm)	2347-300821			
181A	181	(England Version)	2347-300822			
183	183	Self-Tapping Screw (3×8 mm)	2347-300842			
186	186	Metal Washer (4.2×14φ)	2401-0476			
187	187	Hexagon Nut (M3)	2446-301C9			

SCHEMATIC DIAGRAM



IDLING CURRENT ADJUSTMENT

General

Power Supply: AC 220V ± 2V
Dammy Load: 4 ohm

Equipment Required

V.T.V.M.

1. Connect V.T.V.M. to both sides of cement resistor 0.22 ohm (R339).
2. Adjust VR301 so that the voltage becomes 10 mV.
3. Adjust VR302 so that the voltage of R340 becomes 10 mV in the same way.

NOTES:

1. Set VR301 and VR302 in the maximum counter-clockwise position before adjustment.
2. Start adjustment a minute later from turning on to stabilize idling current and under no signal conditions.

TRANSISTOR / IC ELEMENTS VOLTAGE CHART

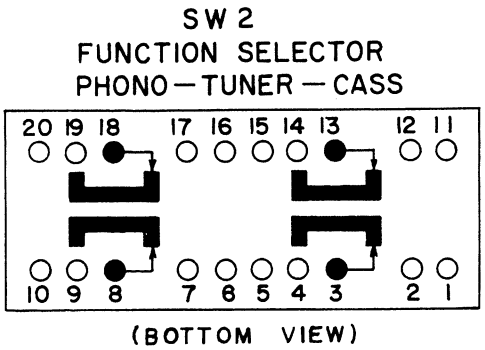
Volts

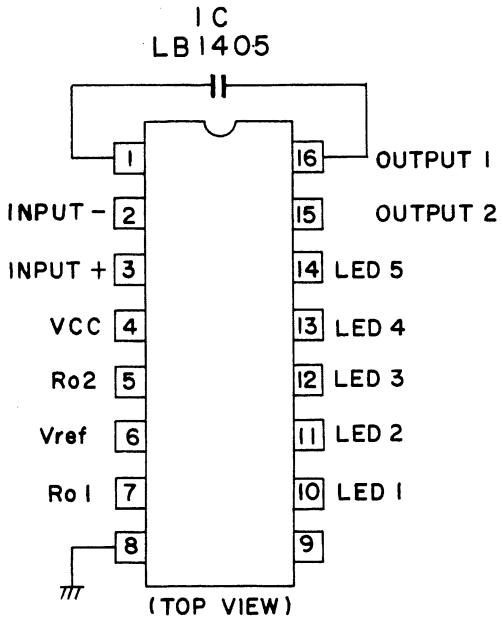
Q' NO.	Q101 Q102	Q103 Q104	Q105 Q106	Q201 Q203	Q202 Q204	Q205 Q206	Q301 Q304	Q302 Q305	Q303 Q306	Q307 Q308	Q309 Q310	Q311 Q312	Q313 Q314	Q315 Q316	Q317 Q318	Q319 Q320	Q321	Q601
BASE	0	13.9	−14.2	0	0	12.3	−0.1	−0.1	−15.0	28.3	−14.9	0.1	0.9	−0.5	29.8	−29.8	−0.7	5.4
EMIT.	−0.5	14.5	−14.9	−0.6	−0.6	13.0	−0.6	−0.6	−15.4	28.7	−15.2	0.5	0	0	30.4	−30.3	0	4.7
COLL.	13.9	−1.0	−1.0	12.3	15.6	0.2	28.3	28.1	−0.6	0.5	−0.6	0.7	29.8	−29.8	0	0	−0.2	7.3

TERMINAL NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
IC 501	–	–	0	4.7	2.2	2.8	1.4	0	–	3.6	3.6	3.6	3.6	4.7	0	0
IC 502	–	–	0	4.7	1.4	2.8	0	0	–	3.6	3.6	3.6	3.6	4.7	0	0
IC 503	0.6	0	0	4.7	1.4	2.8	0	0	–	3.6	3.6	3.6	3.6	4.7	0	0.3
IC 504	0.6	0	0	4.7	2.8	2.8	1.4	0	–	3.6	3.6	3.6	3.6	4.7	0	0.4

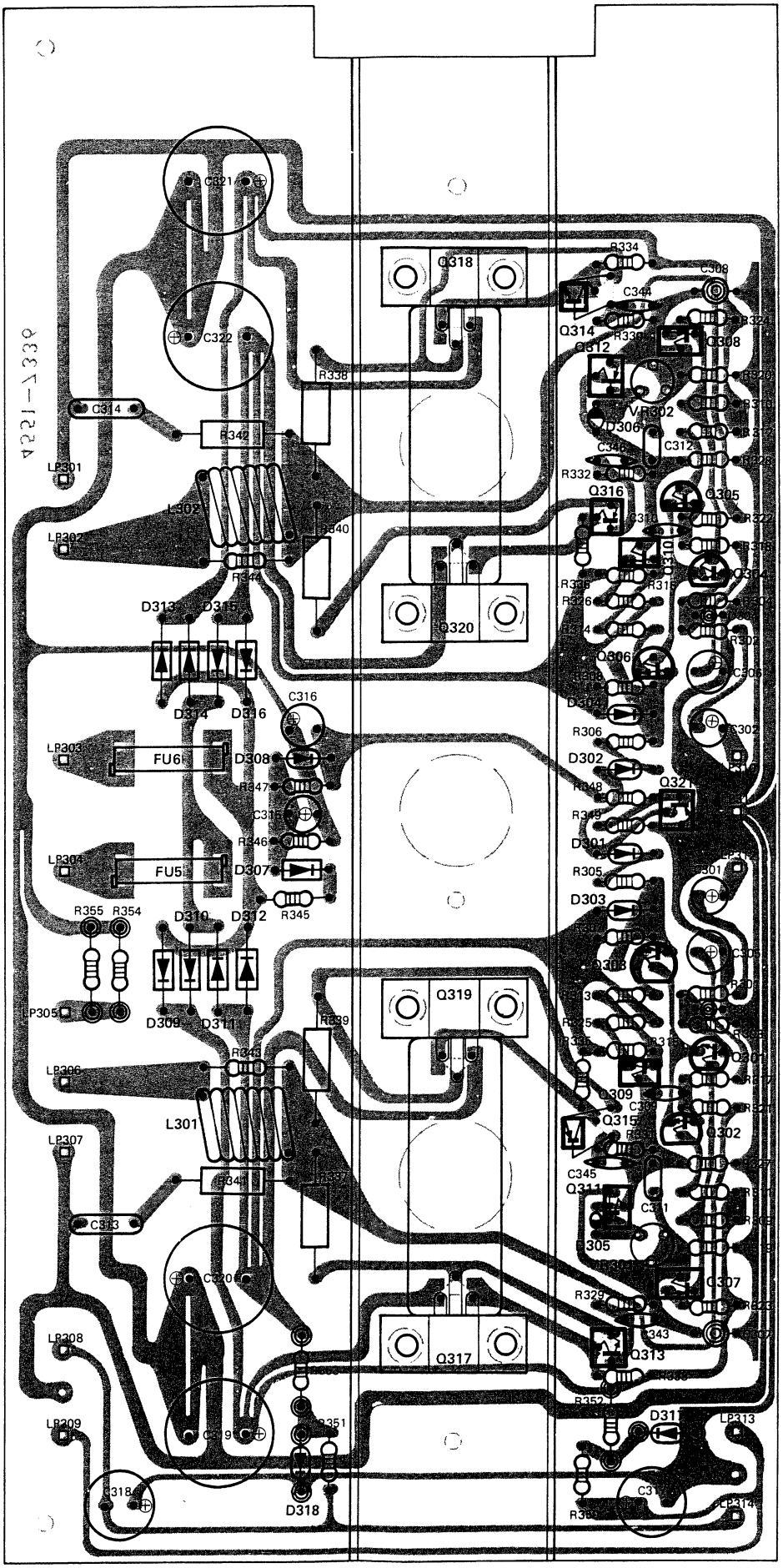
NOTES:

1. ALL RESISTANCES ARE 1/4W UNLESS UTHERWISE NOTED.
   VALUES ARE IN OHMS. K = 1000, M = 1000K
2. ALL CAPACITANCES VALUES ARE IN MF UNLESS OTHERWISE NOTED. P = MMF
3. ALL VOLTAGES READINGS FROM CHASSIS ARE MEASURED WITH V.T.V.M. UNDER NO SIGNAL CONDITIONS.
4. FUNCTION SELECTOR (SW2) IS IN PHONO POSITION.
5. TB SWITCH (SW3) IS IN OFF POSITION.
6. LOUDNESS SWITCH (SW4) IS IN OFF POSITION.
7. LO FILTER SWITCH (SW5) IS IN ON POSITION.
8. HI FILTER SWITCH (SW6) IS IN ON POSITION.
9. DISPLAY SENSITIVITY SWITCH (SW7) IS IN HI POSITION.

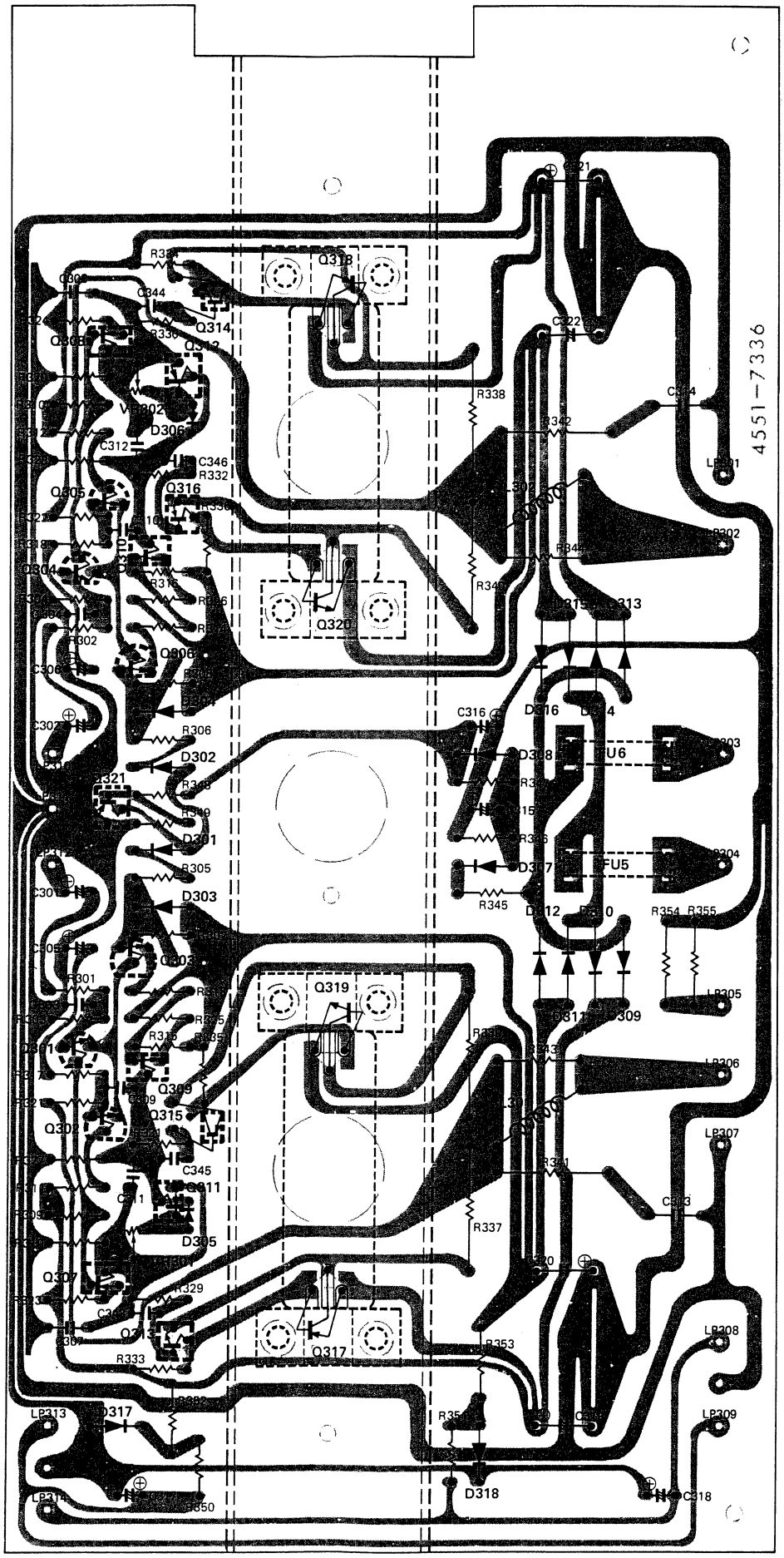




MAIN AMP. P.C. BOARD
COMPONENT SIDE

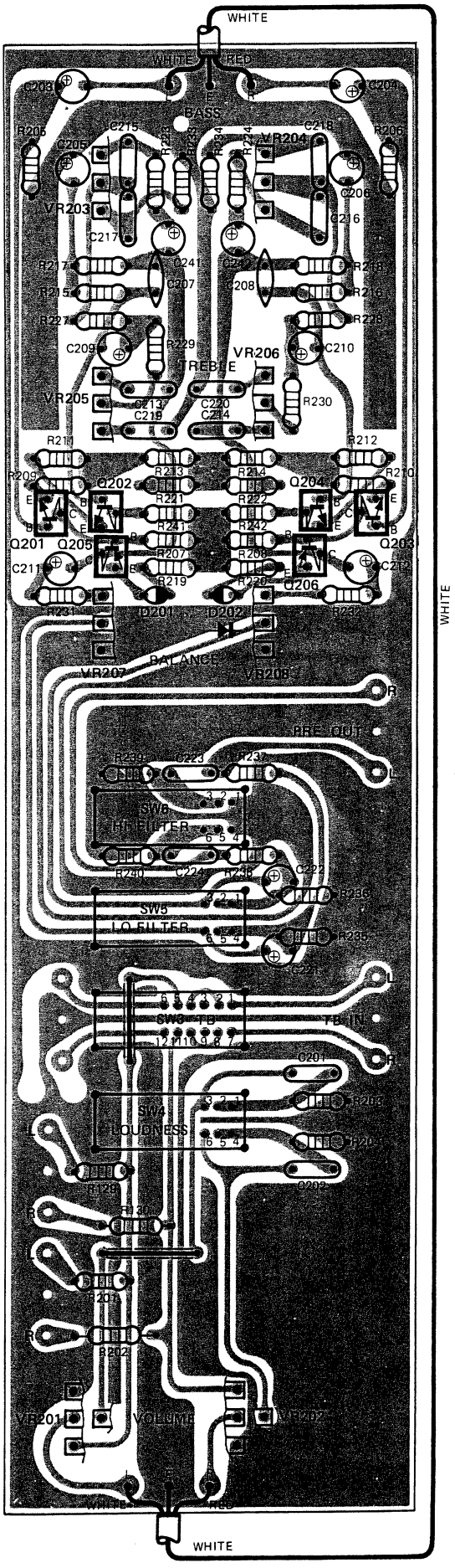


CIRCUIT SIDE

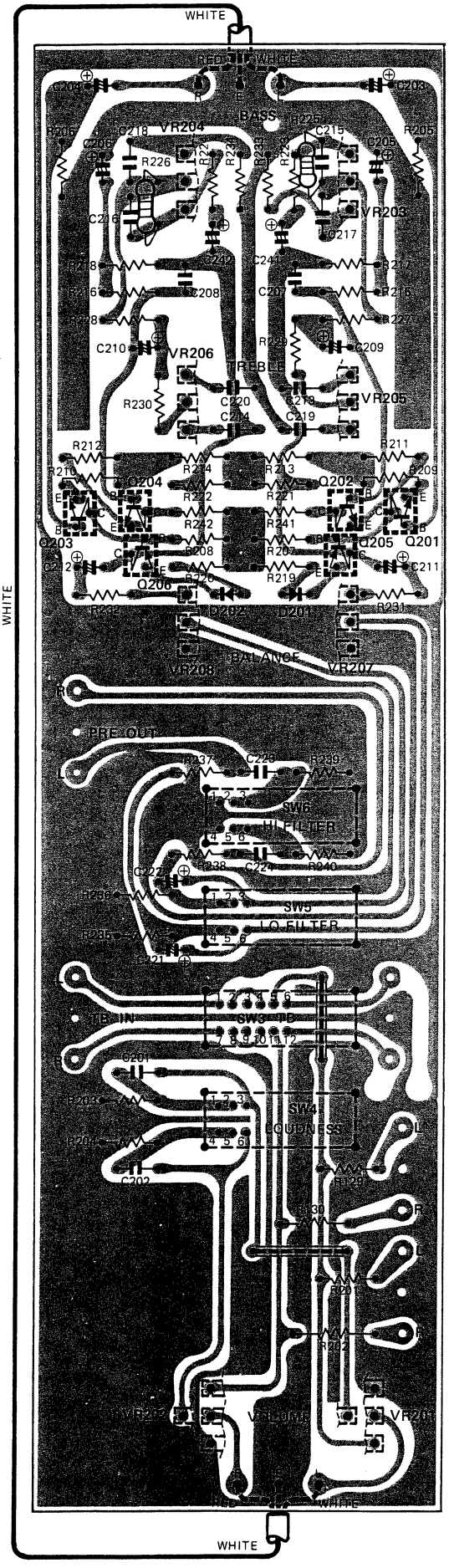


TONE CONTROL P.C. BOARD

COMPONENT SIDE

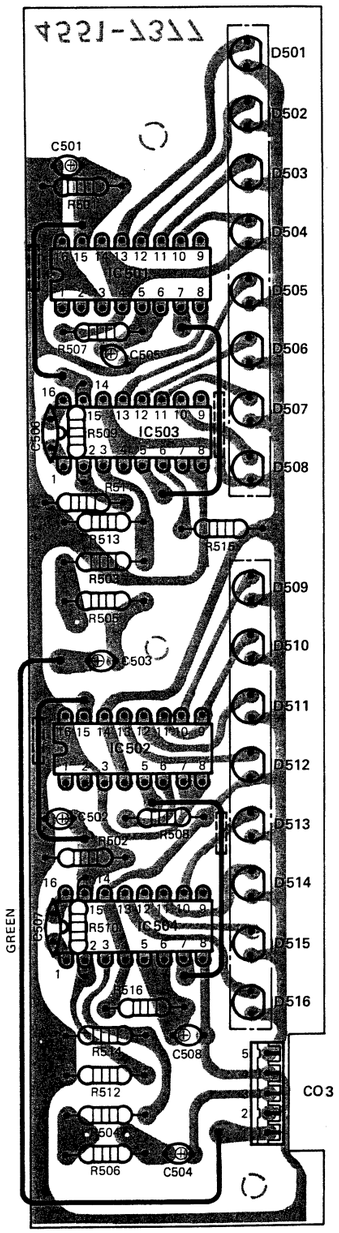


CIRCUIT SIDE



L.E.D. DISPLAY P.C. BOARD

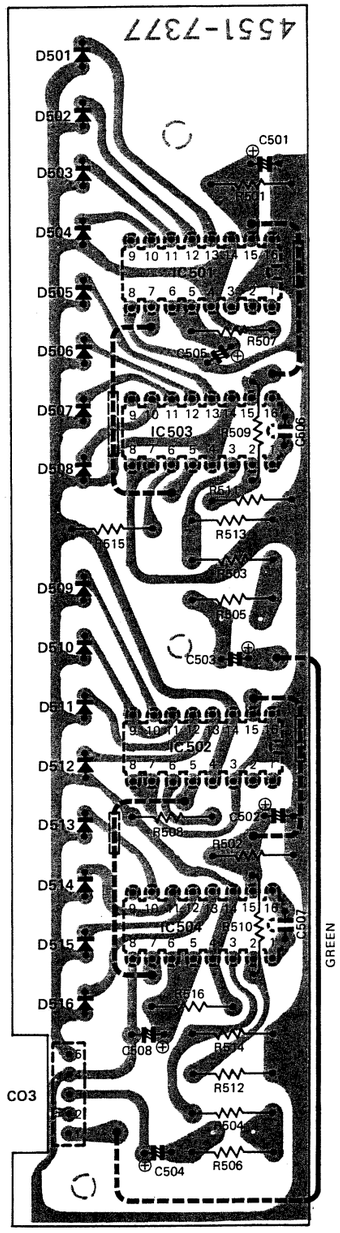
COMPONENT SIDE

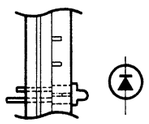


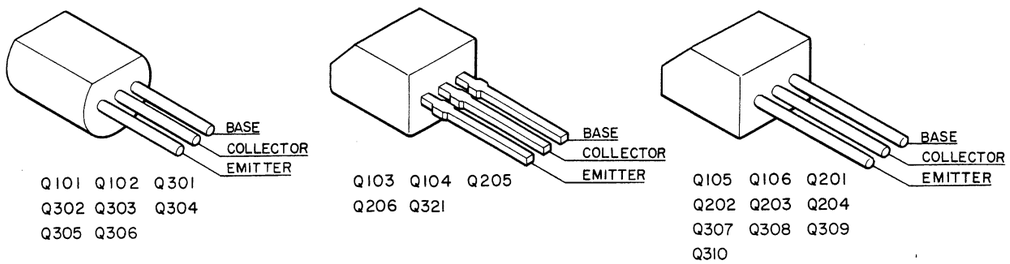
Lch.
LED DISPLAY

Rch.
LED DISPLAY

CIRCUIT SIDE

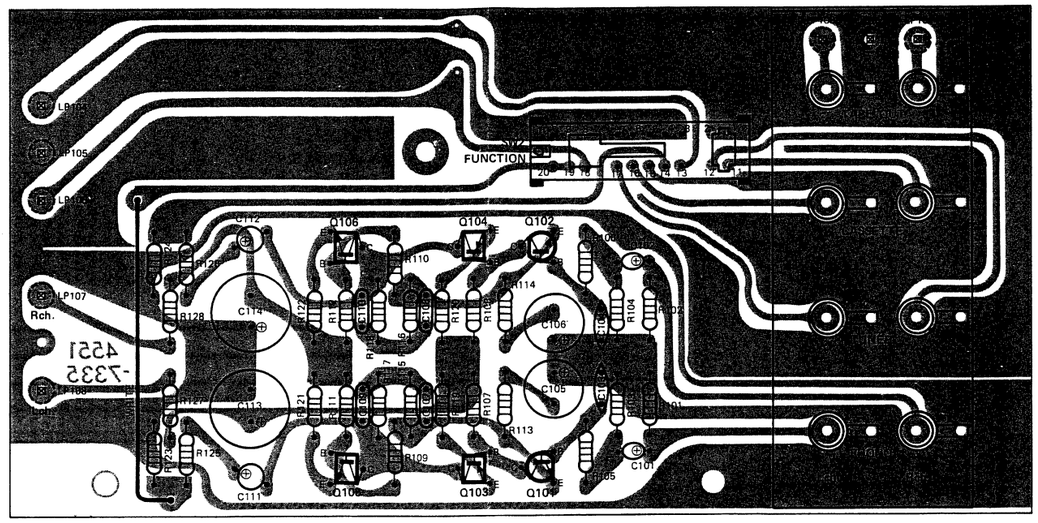




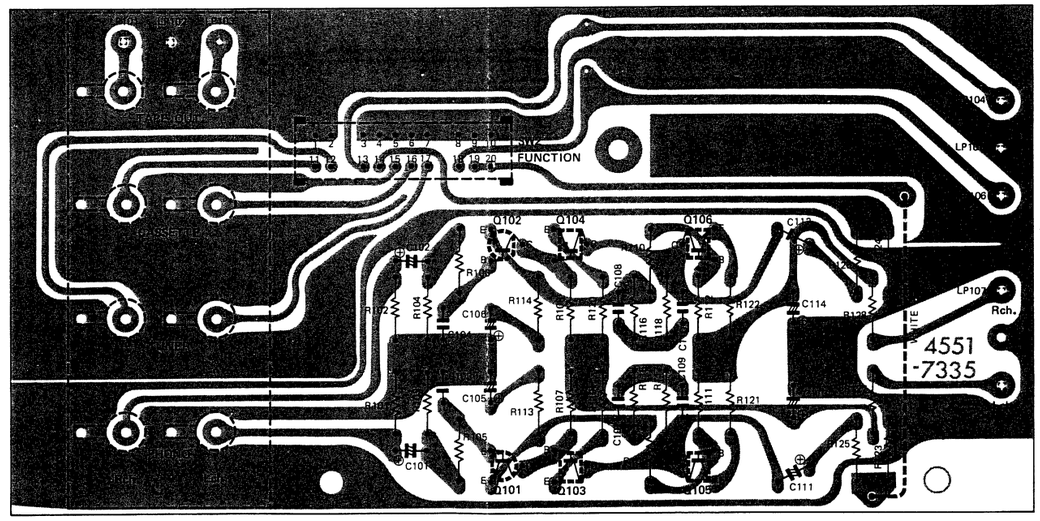


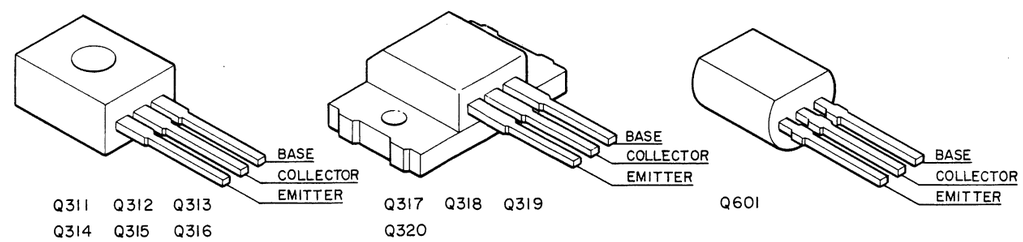
EQUALIZER AMP P.C. BOARD

COMPONENT SIDE

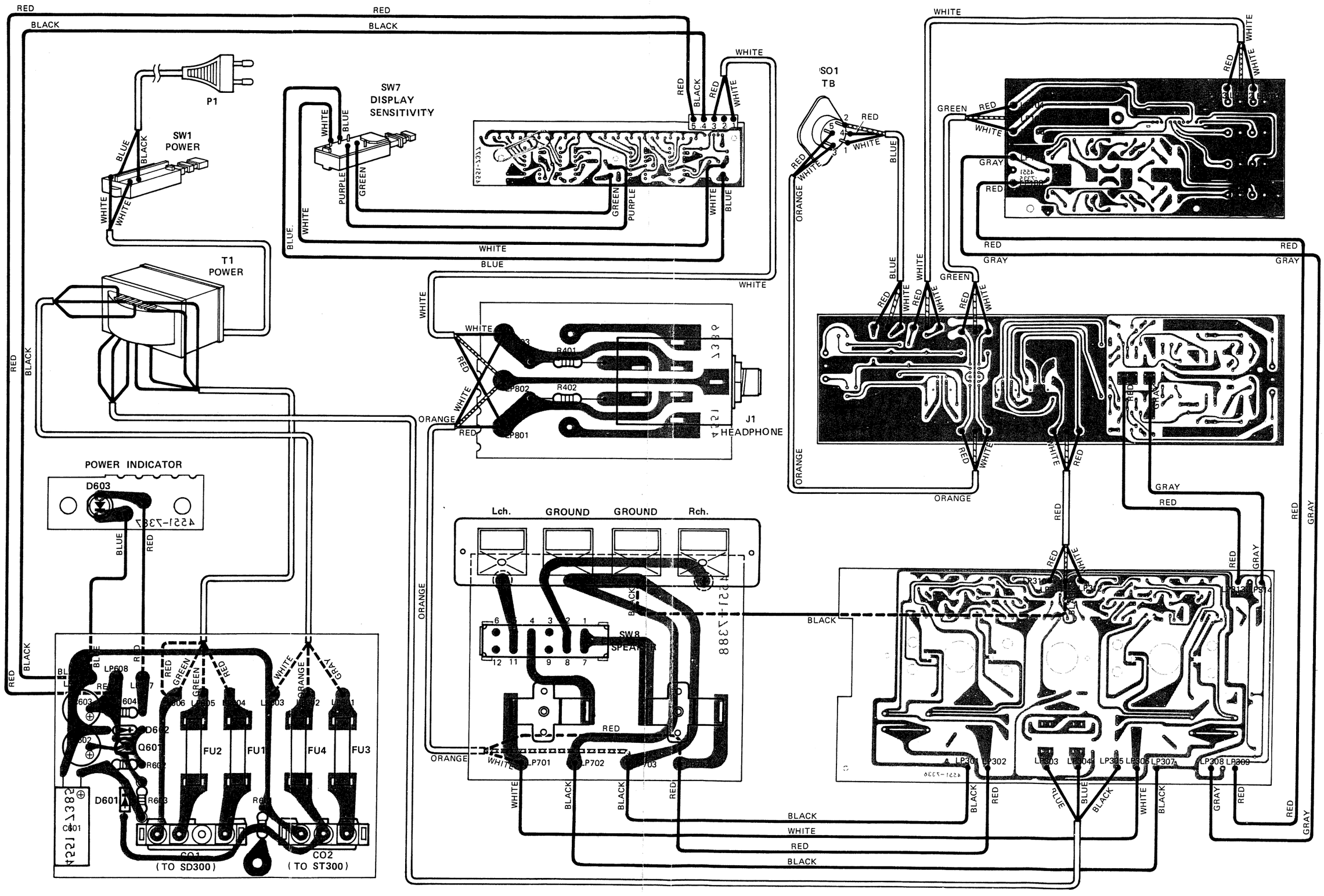


CIRCUIT SIDE





WIRING DIAGRAM



ELECTRICAL PARTS LIST

SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
	RESISTORS					
636	R323, 324	100 ohm 1/4W Fuse	5102-101579			
633	R337, 338, 339, 340	0.22 ohm 2W Cement	5272-R22581			
634	R341, 342	22 ohm 2W Cement	5272-220581			
670	R352, 353	330 ohm 1/2W Fuse	5102-3315710			
671	R355	18 ohm 1/2W Fuse	5102-1805710			
538	VR201, 202	Variable Resistor, 100 k ohm, Volume	5113-1047195			
541	VR203, 204, 205, 206	Variable Resistor, 100 k ohm, Bass, Treble	5113-1047295			
544	VR207, 208	Variable Resistor, Balance	5113-1047395			
605	VR301, 302	Variable Resistor, Idling	5101-1027274			
	CAPACITORS					
516	C101, 102	22MF 6.3V Tantalum Electrolytic	5343-2260653			
520	C103, 104	120PF 50V Ceramic	5361-121JCH			
513	C105, 106	100MF 16V Electrolytic	5345-1070213			
518	C107, 108	3300PF 50V Mylar	5354-332J1HM			
519	C109, 110	0.012MF 50V Mylar	5354-123J1HM			
514	C111, 112, 203, 204	1MF 50V Electrolytic	5345-105F0951			
512	C113, 114	470MF 16V Electrolytic	5345-4770213			
562	C201, 202	0.1MF 50V Mylar	5354-104K1HM			
556	C205, 206	1MF 50V Electrolytic	5345-1050215			
567	C207, 208	10PF 50V Ceramic	5361-100DCH			
559	C209, 210	2.2MF 50V Electrolytic	5345-2250215			
557	C211, 212	10MF 25V Electrolytic	5345-1060214			
565	C213, 214	5600PF 50V Mylar	5354-562K1HM			
563	C215, 216, 219, 220	0.027MF 50V Mylar	5354-273K1HM			
561	C217, 218	0.15MF 50V Mylar	5354-154K1HM			
554	C221, 222	0.47MF 50V Electrolytic	5345-474F0951			
564	C223, 224	0.01MF 50V Mylar	5354-103K1HM			
558	C241, 242	22MF 50V Electrolytic	5345-2260215			
608	C301, 302	10MF 16V Electrolytic	5345-106C0951			
614	C303, 304, 307, 308	330PF 50V Stylor	5355-331J1HS			
607	C305, 306	100MF 16V Electrolytic	5345-1070213			
612	C309, 310	5P 50V Ceramic	5361-050DCH			
610	C311, 312	0.047MF 50V Mylar	5354-473K1HM			
611	C313, 314	0.22MF 50V Mylar	5354-224K1HM			
662	C315	22MF 16V Electrolytic	5345-2260213			
661	C316	100MF 10V Electrolytic	5345-1070212			
660	C317, 318	470MF 25V Electrolytic	5345-4770214			
659	C319, 320, 321, 322	4700MF 50V Electrolytic	5341-478F0266			
613	C343, 344, 345, 346	1000PF 50V Ceramic	5361-102KB			
720	C501, 502	4.7MF 16V Tantalum Electrolytic	5343-4750655			
721	C503, 504, 505, 508	1MF 25V Tantalum Electrolytic	5343-1050657			
723	C506, 507	47PF 50V Ceramic	5361-470092			
690	C601	1000MF 10V Electrolytic	5345-1080212			
691	C602, 603	330MF 6.3V Electrolytic	5345-3370211			
	SEMICONDUCTORS					
501	Q101, 102	Transistor, Equalizer Amp.	5613-1775(E)			
503	Q103, 104	Transistor, Equalizer Amp.	5611-836(D)			
502	Q105, 106	Transistor, Current Regulator	5613-1344(D)			
531	Q201, 202, 203, 204	Transistor, Differential Amp.	5613-1345(E)			
532	Q205, 206	Transistor, Driver	5611-844(E)			
591	Q301, 302, 303, 304, 305, 306	Transistor, Differential Amp., Current Regulator	5613-1845(E)			

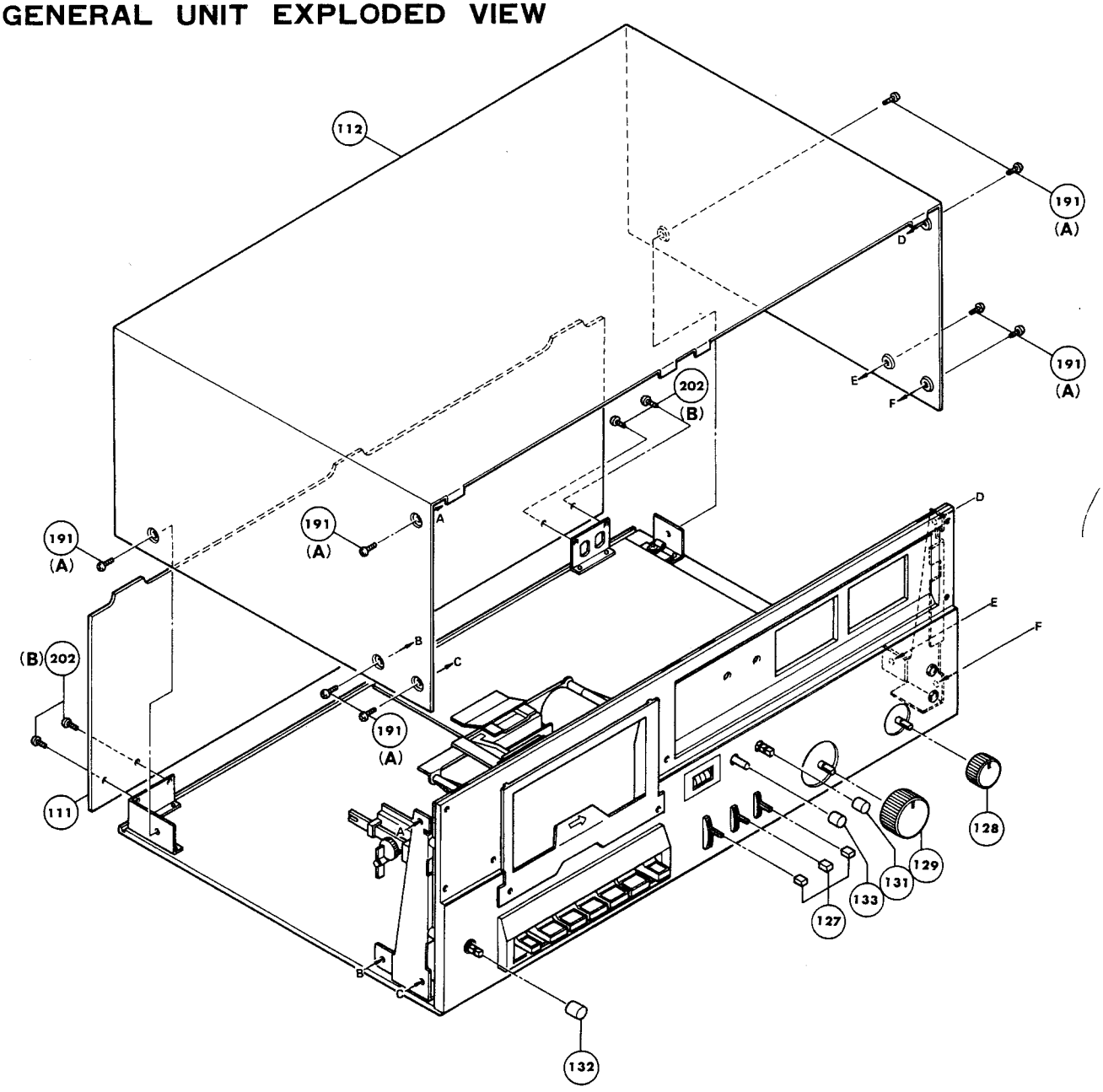
SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
592	Q307, 308	Transistor, Driver	5611-915(L)			
593	Q309, 310	Transistor, Current Regulator	5613-1940(L)			
594	Q311, 312, 315, 316	Transistor, Bias Stabilization, Output Power	5612-549(R)			
595	Q313, 314	Transistor, Output Power	5614-415(R)			
596	Q317, 318	Transistor, Output Power	5612-618A (Q) or (R)			
597	Q319, 320	Transistor, Output Power	5614-588A (Q) or (R)			
651	Q321	Transistor, Muting	5611-844(E)			
687	Q601	Transistor, Voltage Regulator	5614-667(C)			
534	D201, 202	Varistor, Bias Compensation	5641-MV11			
602	D301, 302, 308	Diode, Rectifier, Discharge	5636-1SS81			
600	D303, 304, 317, 318	Zener Diode	5635-RD15EB			
601	D305, 306	Varistor, Bias Compensation	5641-1S1211	4N4448		
653	D307, 309, 310, 311, 312, 313, 314, 315, 316, 601	Diode, Rectifier	5632-ERB12-02			
713	D501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 603	L. E. D., Output Power Display, Power Indicator	5637-GL3AR2			
689	D602	Zener Diode	5635-RD5.6EB			
711	IC501, 502, 503, 504	Integrated Circuit, Output Display	5652-LB1405			
	COILS AND TRANSFORMER					
604	L301, 302	Coil, RF Choke	5991-7045			
742	T1	Transformers, Power	5584-701219			
	MISCELLANEOUS					
744	SW1	Push Switch, Power	4431-01027168			
508	SW2	Remote Switch, Function	4422-7012			
549	SW3	Lever Switch, TB	4462-042715			
548	SW4, 5, 6	Lever Switch, Hi Filter, Lo Filter, Loudness	4462-022716			
718	SW7	Push Switch, Display Sensitivity	4431-01027246			
704	SW8	Remote Switch, Speaker	4422-7014			
746	SO1	Socket, TB	4474-106			
677	J1	Jack, Headphone	4451-7175			
507		8 Pin Jack, Phono/Tuner/Cass./ Tape Out	4457-711			
703	TE1	Terminal, Speaker	4474-109			
696	CO1	Connector, SD300	4443-047151			
697	CO2	Connector, ST300	4443-037150			
717	CO3	Connector, L. E. D. Display	4443-057152			
748	CO4	Connector with Lead, L. E. D. Display	4163-70148			
750	P1	AC Line Cord with Plug	4161-7156			
684	FU1	Fuse, 630mAT	5732-63102			
683	FU2	Fuse, 250mAT	5732-25102			
685	FU3	Fuse, 315mAT	5732-31102			
686	FU4	Fuse, 1.6AT	5732-16202			
641	FU5, 6	Fuse, 5AT	5732-50202			
702		Circuit Braker, 3.15A	4361-312053			
640		Fuse Holder	4472-414			

STEREO CASSETTE TAPE DECK : MODEL SD300

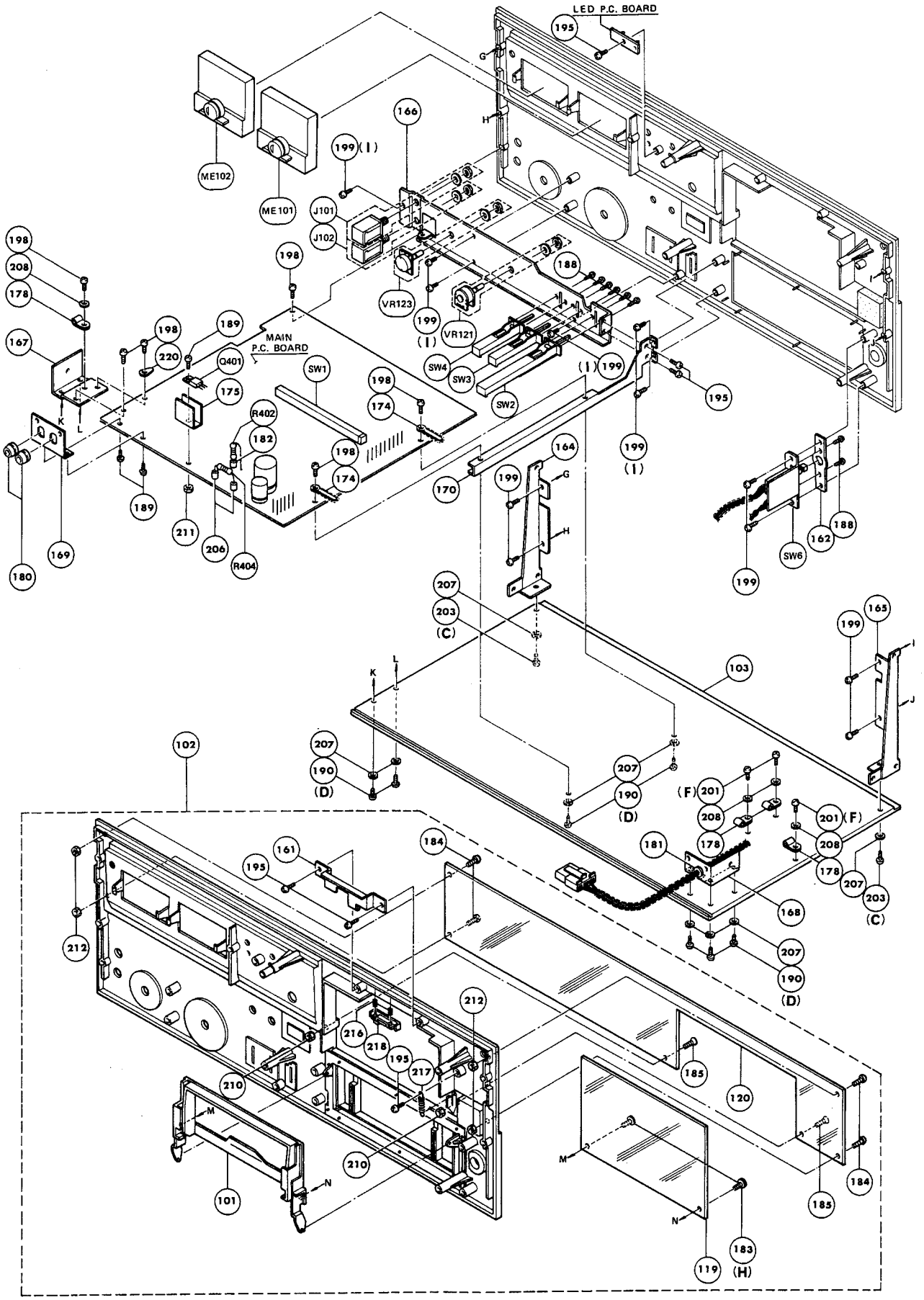
CHASSIS REMOVAL

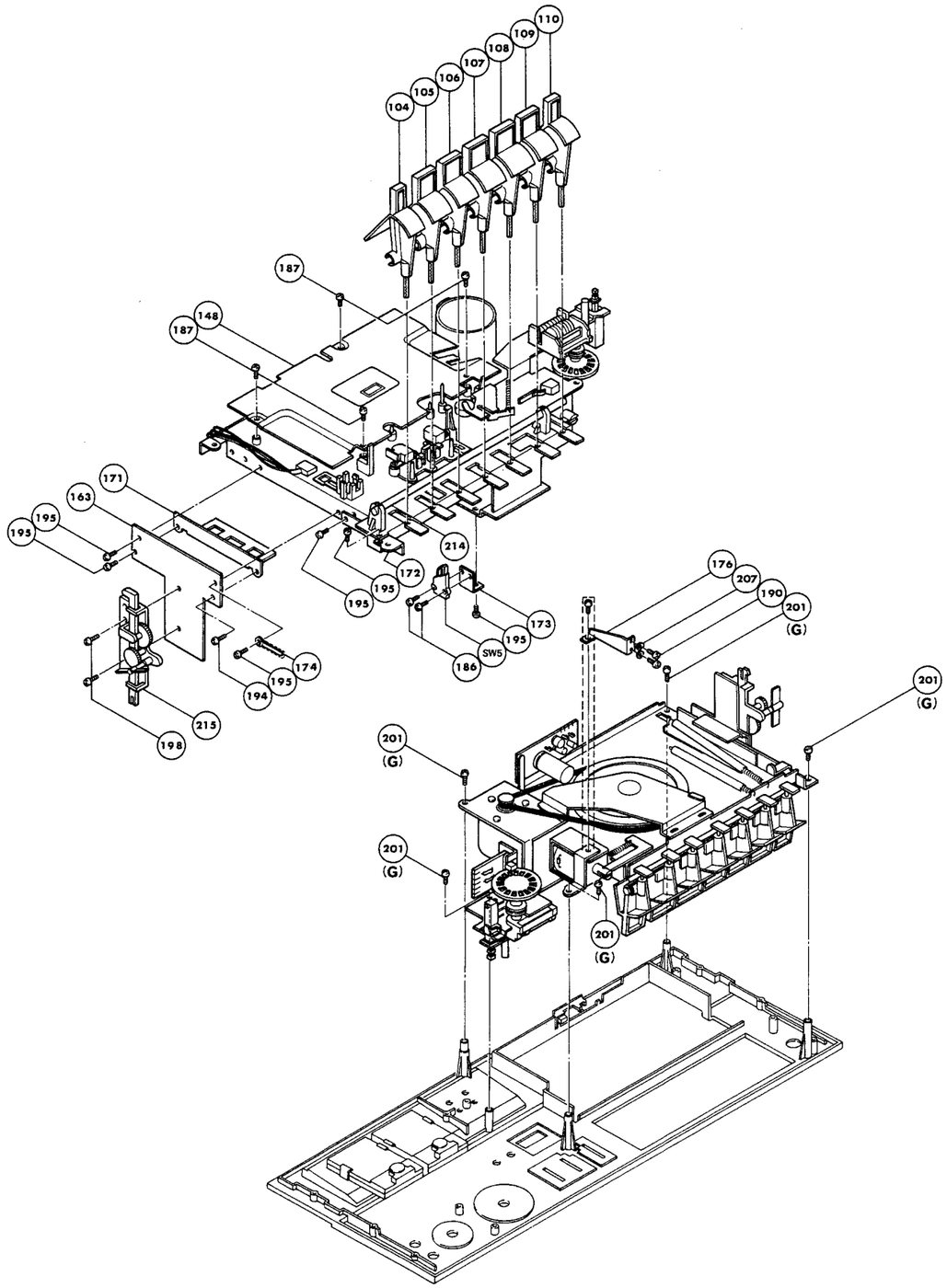
1. Remove cabinet top cover by unscrewing eight screws (A).
2. Remove cabinet back cover by unscrewing four self-tapping screws (B).
3. Remove cabinet bottom cover by unscrewing two self-tapping screws (C), seven screws (D) and three self-tapping screws (F) mounting lead holders.
4. Remove tape recorder mechanical assembly by unscrewing five self-tapping screws (G) and removing gearbox from cassette compartment cover.
5. Remove cassette compartment cover by unhooking coil spring (217) after removing clear panel for cassette compartment cover by unscrewing two special screws (H).
6. Remove main P.C. board with brackets by unscrewing six self-tapping screws (I) after pulling out five knobs of tape selector, dolby switch, input selector, input control and balance control.

GENERAL UNIT EXPLODED VIEW



GENERAL UNIT EXPLODED VIEW

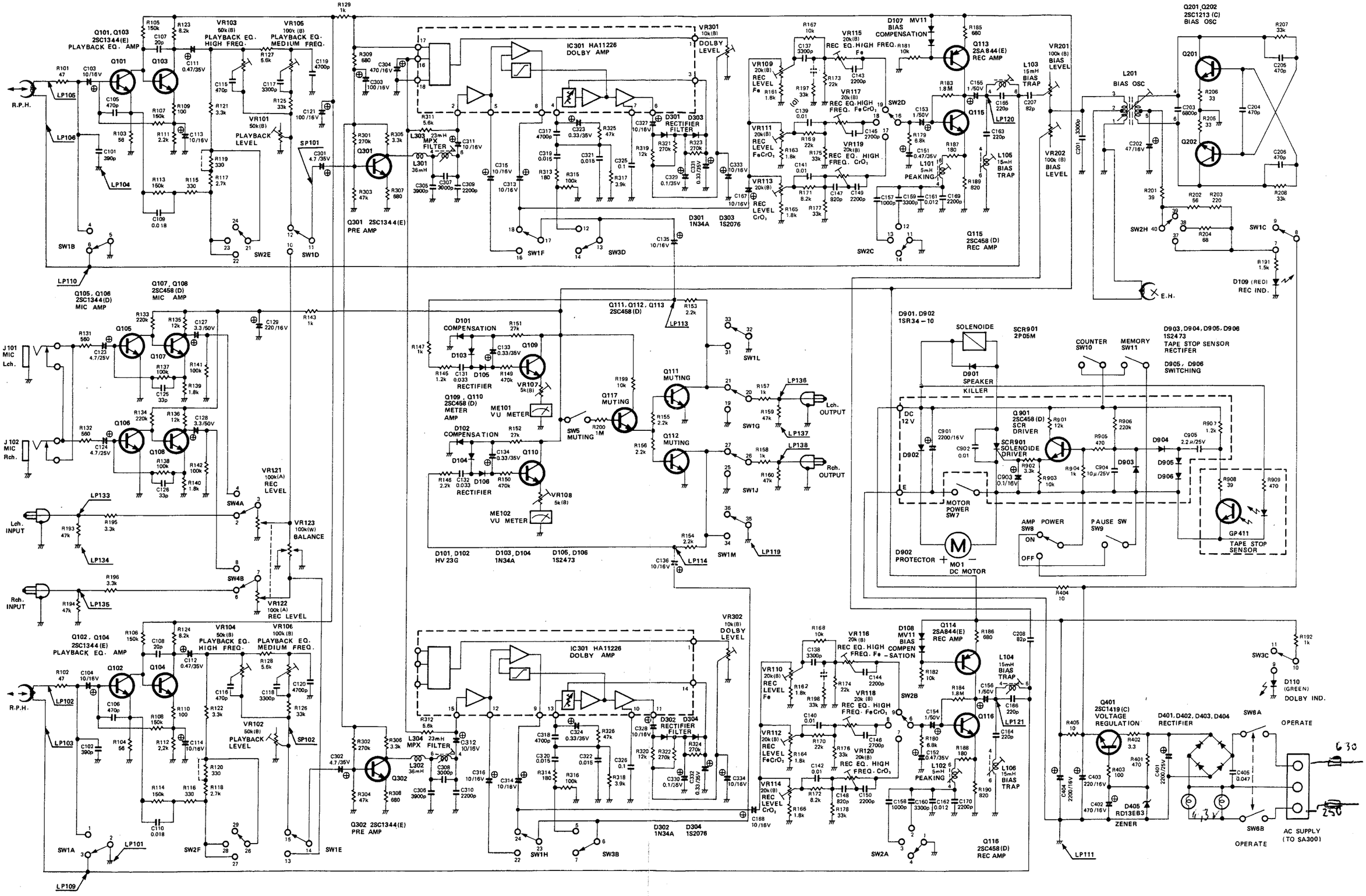




GENERAL UNIT MECHANICAL PARTS LIST

SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
AA	101	Cassette Compartment Cover Assembly	A314-SD300			
AB	102	Front Panel Assembly (includes: Cassette Compartment Cover)	A339-SD300			
AC	103	Cabinet Bottom Cover Assembly	A312-SD300			
AD	104	Push Button Assembly, Eject	A353-SD300			
AE	105	Push Button Assembly, Rec.	A353-SD300-A			
AF	106	Push Button Assembly, Rew.	A353-SD300-B			
AG	107	Push Button Assembly, Play	A353-SD300-C			
AH	108	Push Button Assembly, Stop	A353-SD300-D			
AJ	109	Push Button Assembly, F. F.	A353-SD300-E			
AK	110	Push Button Assembly, Pause	A353-SD300-F			
111	111	Cabinet back Cover	1312-717087			
112	112	Cabinet Top Cover	1314-717044			
119	119	Clear Panel	1339-717137			
120	120	Clear Panel	1339-717138			
127	127	Knob, Tape Selector, Dolby, Input Selector	1352-717084			
128	128	Knob, Balance	1352-717085			
129	129	Knob, Volume	1352-717086			
131	131	Push Button, Memory	1353-727057			
132	132	Push Button, Power	1353-727058			
133	133	Push Button, Counter	1353-727059			
148	148	Dressing Plate	1344-415037			
161	161	Bracket	2219-7376			
162	162	Bracket	2219-7377			
163	163	Bracket	2219-7378			
164	164	Bracket	2219-7379			
165	165	Bracket	2219-7380			
166	166	Bracket	2219-7381			
167	167	Bracket	2219-7382			
168	168	Bracket	2219-7383			
169	169	Bracket	2219-7384			
170	170	Bracket	2219-5479			
171	171	Bracket	2219-5520			
172	172	Bracket	2219-5529			
173	173	Bracket	2219-5512			
174	174	Fixing Bracket	2218-7001			
175	175	Heat Sink	2222-7043			
176	176	Bracket	2219-5524			
178	178	Holder	2240-171			
180	180	Bushing	2114-71192			
181	181	Bushing	2114-415027			
182	182	Spacer	2132-5049			
183	183	Special Screw	2310-7012			
184	184	Special Screw	2320-7007			
185	185	Screw (2×12 mm)	2323-201249			
186	186	Screw (2×8 mm)	2327-200829			
187	187	Screw (2×5 mm)	2327-200529			
188	188	Screw (3×6 mm)	2327-300629			
189	189	Screw (3×8 mm)	2327-300829			
190	190	Screw (3×14 mm)	2327-301429			
191	191	Screw (4×6 mm)	2327-400649			
194	194	Self-Tapping Screw (3×6 mm)	2342-300622			
195	195	Self-Tapping Screw (3×6 mm)	2347-300622			
198	198	Self-Tapping Screw (3×8 mm)	2347-300822			
199	199	Self-Tapping Screw (3×8 mm)	2347-300821			
201	201	Self-Tapping Screw (3×10 mm)	2347-301021			
202	202	Self-Tapping Screw (3×10 mm)	2347-301042			
203	203	Self-Tapping Screw (3×16 mm)	2347-301622			
206	206	Spacer	2132-7048			
207	207	Metal Washer (3.3×8ϕ)	2401-037			
208	208	Flat Washer (3.2×7ϕ)	2411-3022			
210	210	Hexagon Nut (M2)	2446-201C9			
211	211	Hexagon Nut (M3)	2446-301C9			
212	212	Hexagon Nut (M4)	2446-401C9			
214	214	Shaft	2601-5094			
215	215	Gearbox	2629-5004			
216	216	Coil Spring	2651-2101401			
217	217	Coil Spring	2651-110172			
218	218	Slider	2674-5156			
769	220	Lug	4211-4			

SCHEMATIC DIAGRAM



TRANSISTOR / IC ELEMENTS VOLTAGE CHART

Volts

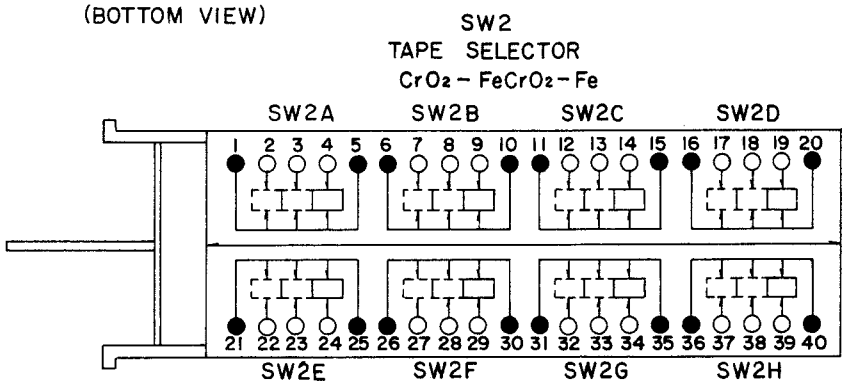
Q' NO.	Q101 Q102	Q103 Q104	Q105 Q106	Q107 Q108	Q109 Q110	Q113 Q114	Q115 Q116	Q201 Q202	Q301 Q302	Q401	Q901
MODE	PLAY/REC		REC								
BASE	0.6	1.2	0.6	1.2	0.1	12.0	1.3	0.8	1.5	14.1	0.5
EMIT	0	0.6	0	0.6	0	12.6	0.6	0.4	0.9	13.5	0
COLL.	1.2	10.4	1.2	8.5	13.1	5.9	5.9	6.2	6.9	21.5	12.4

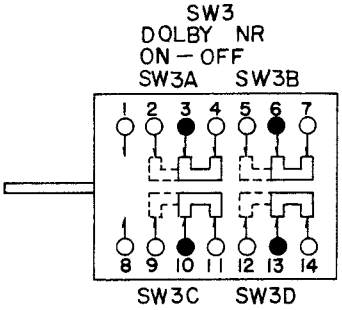
TERMINAL NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
IC 301	0.4	6.6	0.3	6.6	6.6	6.1	2.5	6.6	6.6	2.5	6.1	6.6	6.6	0.2	6.6	6.6	13.1	0

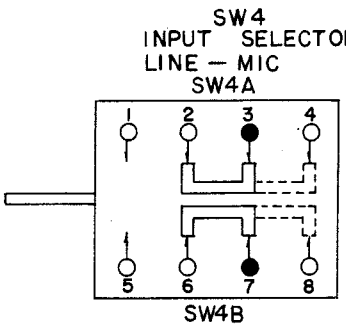
NOTES:

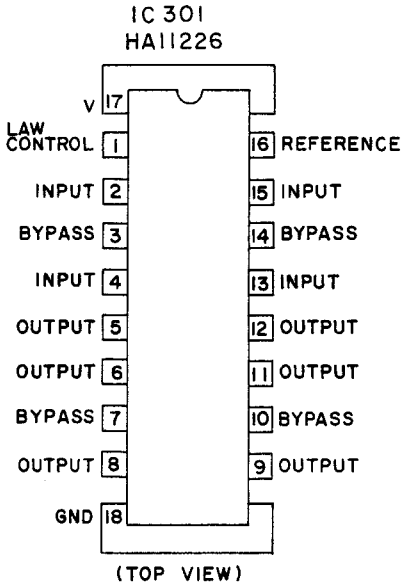
1. ALL RESISTANCES ARE 1/4 W UNLESS OTHERWISE NOTED. VALUES ARE IN OHMS. K = 1000, M = 1000 K
2. ALL CAPACITANCES VALUES ARE IN MF UNLESS OTHERWISE NOTED. P = MMF
3. ALL VOLTAGES READINGS FROM CHASSIS ARE MEASURED WITH V.T.V.M. UNDER NO SIGNAL CONDITIONS.
4. PLAY/REC SWITCH (SW1) IS IN PLAY POSITION.
5. TAPE SELECTOR SWITCH (SW2) IS IN FE POSITION.
6. DOLBY SWITCH (SW3) IS IN OFF POSITION.
7. INPUT SELECTOR SWITCH (SW4) IS IN LINE POSITION.

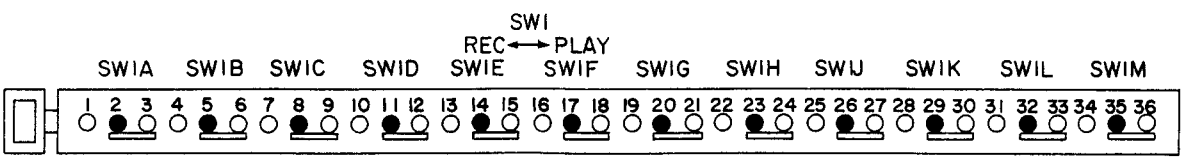
SWITCH CONNECTION
(BOTTOM VIEW)











CASSETTE TAPE DECK ALIGNMENT PROCEDURES

General Conditions (unless otherwise noted)

1. Tape selector is Fe position.
2. Dolby nr switch is OFF position.
3. Volume control is at maximum.
4. Balance control is at mechanical center.

HEAD AZIMUTH ADJUSTMENT

Equipment Required : Dual Channel AC V.T.V.M. and 10 kHz Test Tape (TEAC MTT-114)

1. Unscrew two special screws and remove the clear panel covering the cassette compartment cover.
2. Connect dual channel AC V.T.V.M. to both left and right output jacks.
3. Playback the "A" side of the test tape and adjust head azimuth adjustment screw so that the output indicated by the AC V.T.V.M. will be maximum and the difference of output between left and right becomes less than 3 dB.
4. Playback the "B" side of the test tape and adjust head azimuth adjustment screw until the difference of output from side "A" and side "B" becomes less than 3 dB.

TAPE SPEED ADJUSTMENT

Equipment Required : Frequency Counter and 3 kHz Test Tape (TEAC MTT-111D)

1. Connect frequency counter to either left or right output jack.
2. Playback the test tape and adjust the variable resistor built in the DC motor for 3 kHz (+3, −2%). In this adjustment, use the central portion of the test tape.

PLAY AMP LEVEL ADJUSTMENT

Equipment Required : Dual Channel AC V.T.V.M. and Test Tape (MTT-150)

1. Connect dual channel AC V.T.V.M. to LP113 (left), LP114 (right) and LP119 (ground).
2. Playback the test tape and adjust VR101 (left) and VR102 (right) so that the output will be 0.775 V (+0, −0.5 dB), when shorting LP103 and LP109, LP106 and LP110.

PLAY FREQUENCY CHARACTERISTIC ADJUSTMENT

Equipment Required : AF Sweep Generator, Sweep Scope

1. Connect attenuater and audio sweep generator to LP103, LP106, LP109 and LP110 as shown in fig 1.
2. Connect sweep scope to LP136 (left), LP138 (right) and LP137 (ground).
3. Varying the frequency from 315 Hz to 10 kHz, adjust VR103 (left high), VR105 (left medium), VR104 (right high) and VR106 (right medium) so that output versus frequency curve displayed on the scope is within the curve shown in fig 2.

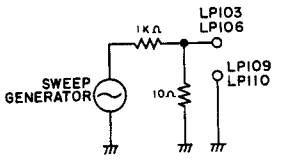


Fig 1

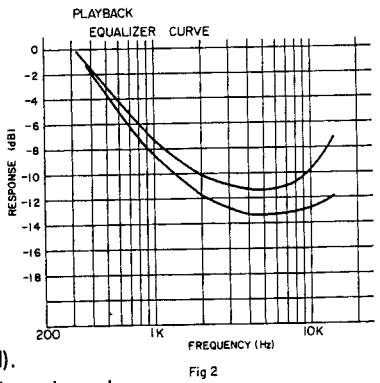


Fig 2

METER LEVEL ADJUSTMENT

Equipment Required : Audio Signal Generator and Dual Channel AC V.T.V.M.

1. Set input selector to line.
2. Connect dual V.T.V.M. to LP113 (left), LP114 (right) and LP119 (ground).
3. Connect audio signal generator to LP133 (left), LP135 (right) and LP134 and apply 400 Hz signal.
4. Set the unit in recording mode and adjust the output of the generator so that the output of V.T.V.M. will be 0.775 V.
5. Adjust VR107 (left) and VR108 (right) so that the reading of meter is 3 VU (+0, −0.5 dB).

19 kHz FILTER ADJUSTMENT

Equipment Required : Audio Signal Generator and Dual Channel AC V.T.V.M.

1. Set input selector to line.
2. Connect the generator to LP133 (left), LP135 (right) and apply 400 Hz signal.
3. Connect V.T.V.M. to LP113 (left), LP114 (right) and LP119 (ground), and adjust the generator so that the output becomes 0.775 V after setting the unit in recording mode.
4. Set the frequency to 19 kHz, and adjust L303 (left) and L304 (right) so that the output becomes minimum.

DOLBY LEVEL ADJUSTMENT

Equipment Required : Audio Signal Generator and Dual Channel AC V.T.V.M.

1. Connect the generator to SP101 (left), SP102 (right) and LP111 (ground), and apply 5 kHz signal.
2. Connecting V.T.V.M. to LP113 (left), LP114 (right) and LP119 (ground), adjust the generator so that the output becomes 59 mV.
3. Setting dolby nr to ON, adjust VR301 (left) and VR302 (right) so that the output becomes −8.2 dB (+0.15, −0.05 dB) of above output.
4. Setting dolby nr to OFF, connect the generator to LP133 (left), LP135 (right) and LP134 (ground).
5. Setting the unit in recording and applying 5 kHz signal, adjust the generator so that the output becomes 23.5 mV.

BIAS TRAP AND BIAS FREQUENCY ADJUSTMENT

Equipment Required : Frequency Counter and Dual Channel AC V.T.V.M.

1. Connecting Frequcncy counter to LP101 and LP102, set the unit in recording.
2. Adjust L201 so that the frequency becomes 85 kHz ±1 kHz.
3. Connecting V.T.V.M. to LP120 (left), LP121 (right) and LP119 (ground), adjust L103, L104, L105 and L106 so that the output becomes minimum.

BIAS LEVEL ADJUSTMENT

Equipment Required : Dual Channel AC V.T.V.M., Audio Signal Generator and Test Tape (T308S)

1. Connect ceramic capacitors (150 PF) to LP101-LP103 and LP104-LP106.
2. Connect V.T.V.M. (A) to LP113 (left), LP114 (right) and LP119 (ground), and connect V.T.V.M. (B) to LP105 (left), LP102 (right) and LP101.
3. Connecting the generator to LP133 (left), LP135 (right) and LP134 (ground) and applying 6.3 kHz signal, adjust the input level so that the output of V.T.V.M. (A) becomes 77.5 mV, when setting the unit in recording mode.
4. Vary bias level on V.T.V.M. (B) from 5 mV to 10 mV by VR201 (left) and VR202 (right), and record it on a test tape (T308S).
5. Playback the test tape (T308S) and read the maximum output on V.T.V.M. (A).
6. Removing ceramic capacitors, record and play varying the bias level from 10 mV to 15 mV.
7. Obtaining a rated bias level when the output becomes 4.5 dB less than maximum, adjust the bias level to it.

REC/PLAY LEVEL ADJUSTMENT

Equipment Required : Audio Signal Generator, Dual Channel V.T.V.M. and Test Tape (T308S, TMT6195 and C401R)

1. Connect the generator to LP133 (left), LP135 (right) and LP134 (ground) and apply 400 Hz signal.
2. Connect V.T.V.M. to LP113 (left), LP114 (right) and LP119 (ground).
3. Set the unit in recording mode.
4. Adjust the input so that the output becomes 0.775 V.
5. Recording this signal on the test tape (T308S) and playing it, adjust VR109 and VR110 by repeating rec and play so that the output on V.T.V.M. becomes 0.775 V (+0.2, −0.8 dB).
6. Adjust VR111 and VR112 for FeCr position as it is with Fe position by using the test tape (TMT-6195).
7. Adjust VR113 and VR114 for CrO2 position as it is with Fe position by using the test tape (C401R).

REC/PLAY FREQUENCY CHARACTERISTIC ADJUSTMENT

Equipment Required : Sweep Scope and Audio Sweep Generator

1. Short LP107 and LP108.
2. Connect sweep scope to LP106, LP104, LP103 and LP101, and connect audio sweep generator to LP133 (left), LP135 (right) and LP134 (ground).
3. In recording mode, vary frequency of generator from 315 Hz to 20 kHz.
4. Adjust VR115 (left high), VR116 (right high), L101 (left peaking) and L102 (right peaking) so that the curve displayed on the scope is within the curve as shown in fig. 3.

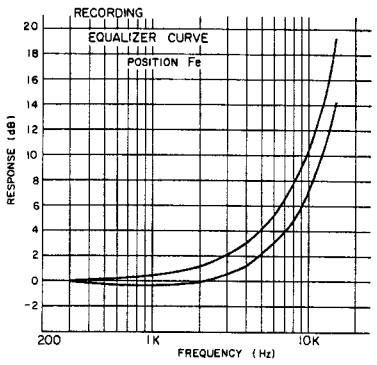


Fig 3

REC/PLAY FREQUENCY CHARACTERISTIC (FeCr) ADJUSTMENT

Equipment Required : Sweep Scope and Audio Sweep Generator

1. Set tape selector to FeCr.
2. Follow steps 1, 2 and 3 of rec/play frequency characteristic above.
3. Adjust VR117 and VR118 so that the curve displayed on the scope is within the curve shown in fig. 4.

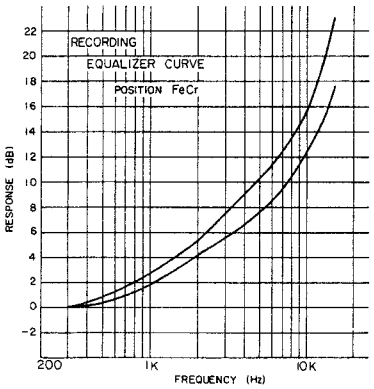


Fig 4

REC/PLAY FREQUENCY CHARACTERISTIC (CrO2) ADJUSTMENT

Equipment Required : Sweep Scope and Audio Sweep Generator

1. Set tape selector to CrO2.
2. Follow steps 1, 2 and 3 of rec/play frequency characteristic above.
3. Adjust VR119 and VR120 so that the curve displayed on the scope is within the curve shown in fig. 5.

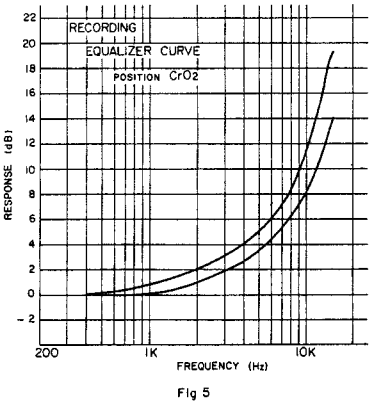
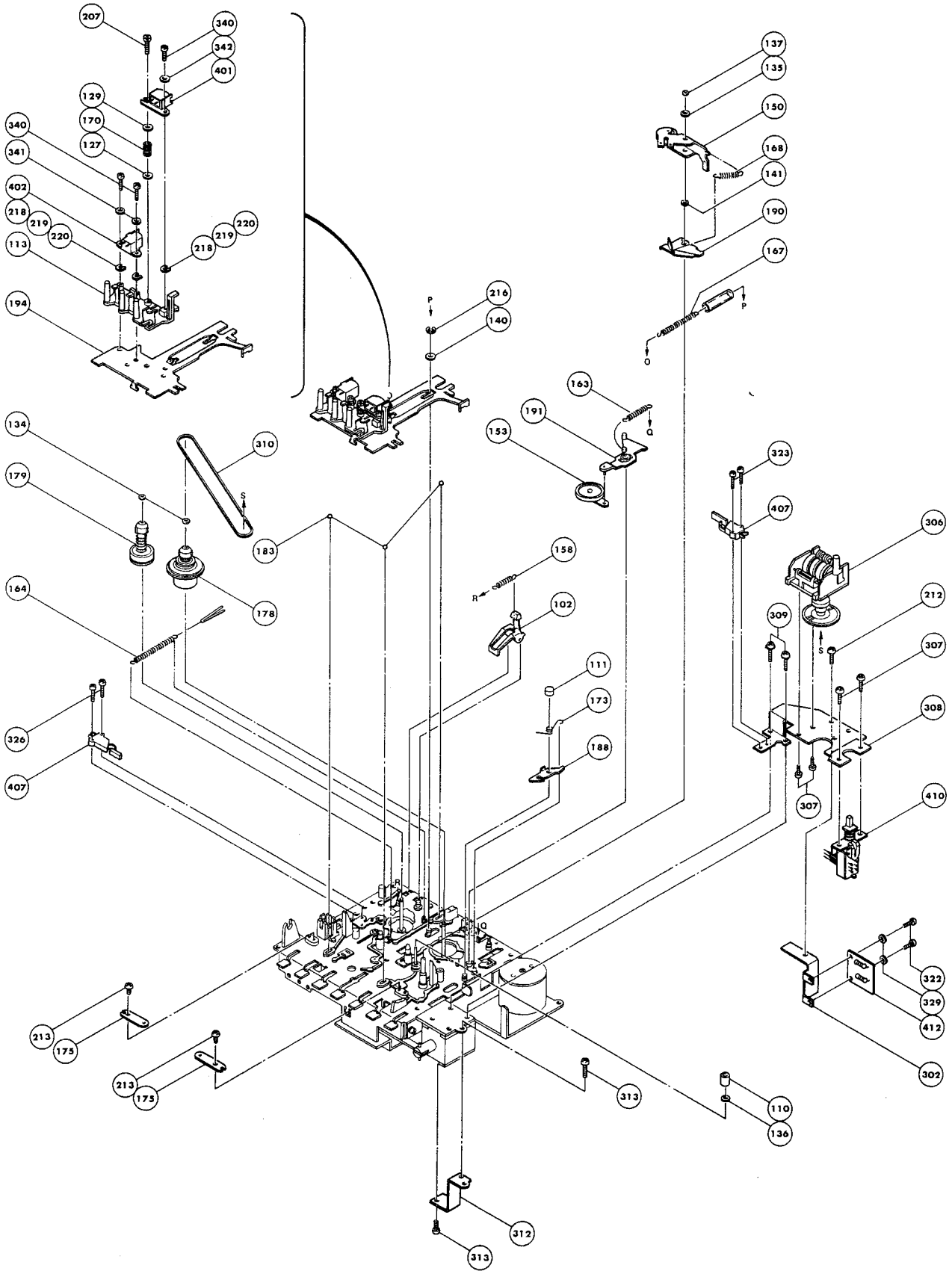


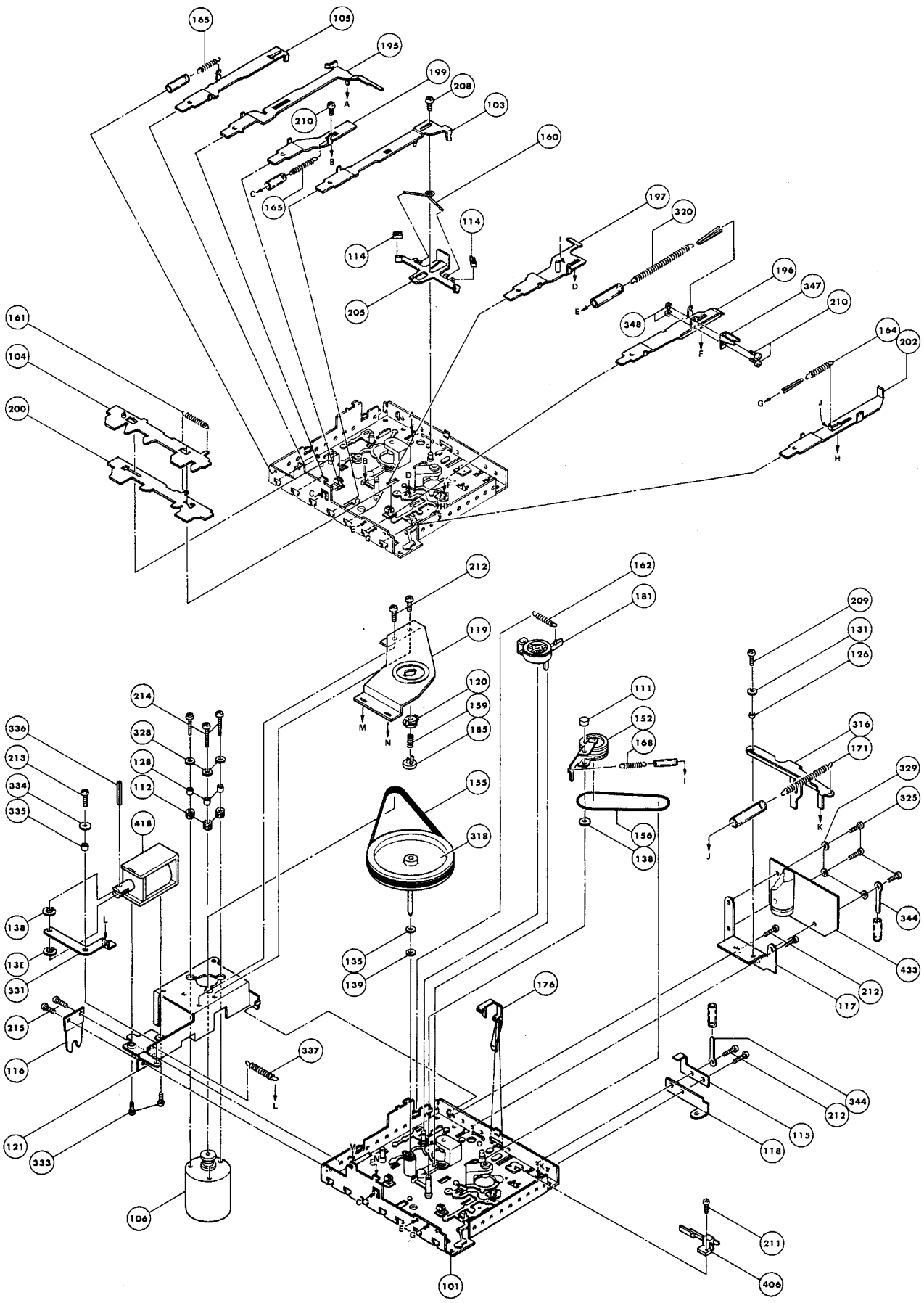
Fig 5

NOTE : When measuring with V.T.V.M. in stead of sweep scope, measure at about 10 points between 315 Hz and 10 kHz and draw the graph of output versus frequency.

CASSETTE TAPE DECK MECHANICAL EXPLODED VIEW (MRT14MV(D))



CASSETTE TAPE DECK MECHANICAL EXPLODED VIEW



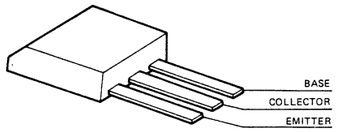
CASSETTE TAPE DECK MECHANICAL PARTS LIST

SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
AA	101	Chassis Assembly	B211-MRT14MVA			
AB	102	Lever Assembly, Rec. Safety	B672-MRT14MVA			
AC	103	Slider Assembly, Play	B674-MRT14MVA			
AD	104	Slider Assembly, Lock	B674-MRT14MVB			
AE	105	Slider Assembly, Pause	B674-MRT14MVC			
AFD	106	D.C. Motor Assembly (w/Pulley)	D311-MRT14MVA			
102	110	Rubber Band	1291-13			
104	111	Bushing	2114-415052			
105	112	Bushing	2114-415066			
107	113	Spacer	2132-5088			
109	114	Brake Shoe	2135-5004			
112	115	Bracket	2219-5525			
113	116	Bracket	2219-5528			
114	117	Bracket	2219-5495			
115	118	Bracket	2219-5496			
116	119	Bracket	2219-5497			
118	120	Holder	2240-5090			
121	121	Motor Bracket	2251-5021			
126	126	Metal Washer (3.1×4.95φ)	2401-0349			
127	127	Metal Washer (3.8×6.5φ)	2401-0348			
128	128	Metal Washer (2.65×3.65φ)	2401-0253			
129	129	Metal Washer (2.3×6φ)	2401-0245			
131	131	Metal Washer (3.3×9φ)	2401-0314			
134	134	Nylon Washer (1.7×3.2φ)	2402-014			
135	135	Nylon Washer (2.6×4.7φ)	2402-0241			
136	136	Mylar Washer (2.3×5.5φ)	2402-0245			
137	137	Nylon Washer (2.1×4φ)	2402-0243			
138	138	Nylon Washer (4.1×6.5φ)	2402-049			
139	139	Mylar Washer (2.6×4.7φ)	2402-0249			
140	140	Nylon Washer (3.1×5.4φ)	2402-0345			
141	141	Nylon Washer (4.1×6.5φ)	2402-045			
150	150	Pinch Roller	2614-5020			
152	152	Idler	2615-5028			
153	153	Idler	2615-5019			
155	155	Belt	2642-02410			
156	156	Belt	2642-01452			
158	158	Coil Spring	2651-1103405			
159	159	Coil Spring	2651-210164			
160	160	Spring	2651-5066			
161	161	Coil Spring	2651-110310			
162	162	Coil Spring	2651-110348			
163	163	Coil Spring	2651-1103415			
164	164	Coil Spring	2651-1103408			
165	165	Coil Spring	2651-1103414			
167	167	Coil Spring	2651-1103409			
168	168	Coil Spring	2651-1103410			
170	170	Coil Spring	2651-210146			
171	171	Coil Spring	2651-1103420			
173	173	Spring	2651-5069			
175	175	Leaf Spring	2652-5097			
176	176	Leaf Spring	2652-5130			
178	178	Take-Up Reel Spindle	2661-425013			
179	179	Supply Reel Spindle	2661-425025			
181	181	Clutch	2662-5010			
183	183	Steel Ball	2711-002011			
185	185	Bearing	2712-5020			
188	188	Lever	2672-5196			
190	190	Lever	2672-5146			
191	191	Lever	2672-5231			

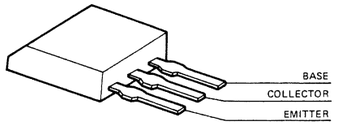
SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
194	194	Slider	2674-5115			
195	195	Slider	2674-5142			
196	196	Slider	2674-5138			
197	197	Slider	2674-5139			
199	199	Slider	2674-5141			
200	200	Slider	2674-5135			
202	202	Slider	2674-5158			
205	205	Brake	2677-5005			
207	207	Special Screw	2310-5012			
208	208	Special Screw	2320-5005			
209	209	Screw (3×6 mm)	2327-300629			
210	210	Screw (2×5 mm)	2327-200529			
211	211	Screw (2×6 mm)	2327-200629			
212	212	Self-Tapping Screw (3×6 mm)	2347-300622			
213	213	Self-Tapping Screw (2.6×6 mm)	2347-260622			
214	214	Screw (2.6×8 mm)	2327-260829			
215	215	Self-Tapping Screw (3×8 mm)	2347-300822			
216	216	E-Stop Ring (2.3φ)	2461-234			
218	218	Special Washer, Head Hight Adjustment	2410-5017			
219	219	Special Washer, Head Hight Adjustment	2410-5018			
220	220	Special Washer, Head Hight Adjustment	2410-5019			
402 D	302	Bracket	2219-5521			
406 D	306	Tape Counter	3131-415006			
407 D	307	Screw (3×5 mm)	2327-300529			
408 D	308	Bracket	2219-5522			
409 D	309	Toothed Lock Screw	2522-300529			
410 D	310	Belt	2642-01451			
412 D	312	Bracket	2219-5523			
413 D	313	Screw (3×4 mm)	2327-300429			
416 D	316	Lever	2672-5229			
418 D	318	Flywheel	2617-5107			
420 D	320	Coil Spring	2651-1103422			
422 D	322	Self-Tapping Screw (3×10 mm)	2347-301022			
423 D	323	Screw (2×8 mm)	2327-200829			
425 D	325	Screw (3×6 mm)	2327-300629			
426 D	326	Screw (2×8 mm)	2327-200849			
428 D	328	Metal Washer (2.8×8φ)	2401-029			
429 D	329	Metal Washer (3.2×8φ)	2402-0310			
431 D	331	Lever	2672-5227			
433 D	333	Screw (3×4 mm)	2323-300429			
434 D	334	Metal Washer (2.9×7.5φ)	2401-0244			
435 D	335	Metal Washer (2.8×3.9φ)	2401-022			
436 D	336	Spring Pin	2425-3012722			
437 D	337	Coil Spring	2651-110365			
440 D	340	Special Screw	2310-5010			
441 D	341	Flat Washer (2.3×5φ)	2411-2021			
442 D	342	Metal Washer (2.3×5φ)	2401-0254			
444 D	344	Fixing Bracket	2218-5003			
447 D	347	Spring	2652-5133			
448 D	348	Hexagon Nut (M2)	2446-201C9			
501 D	401	Play/Rec. Head	5874-3312			
502 D	402	Erase Head	5873-229			
222	406	Spring Switch (SW7)	4463-40			
507 D	407	Spring Switch (SW8, 9)	4463-17			
510 D	410	Push Switch (SW11)	4431-01027146			
518 D	418	Solenoid	4333-4035			

MAIN P.C. BOARD COMPONENT SIDE

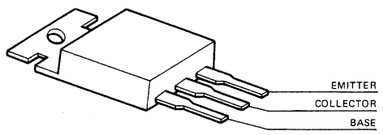
Q101, Q102, Q103, Q104, Q105, Q106, Q107, Q108, Q109, Q110, Q111, Q112, Q115, Q116, Q117, Q301, Q302, Q901

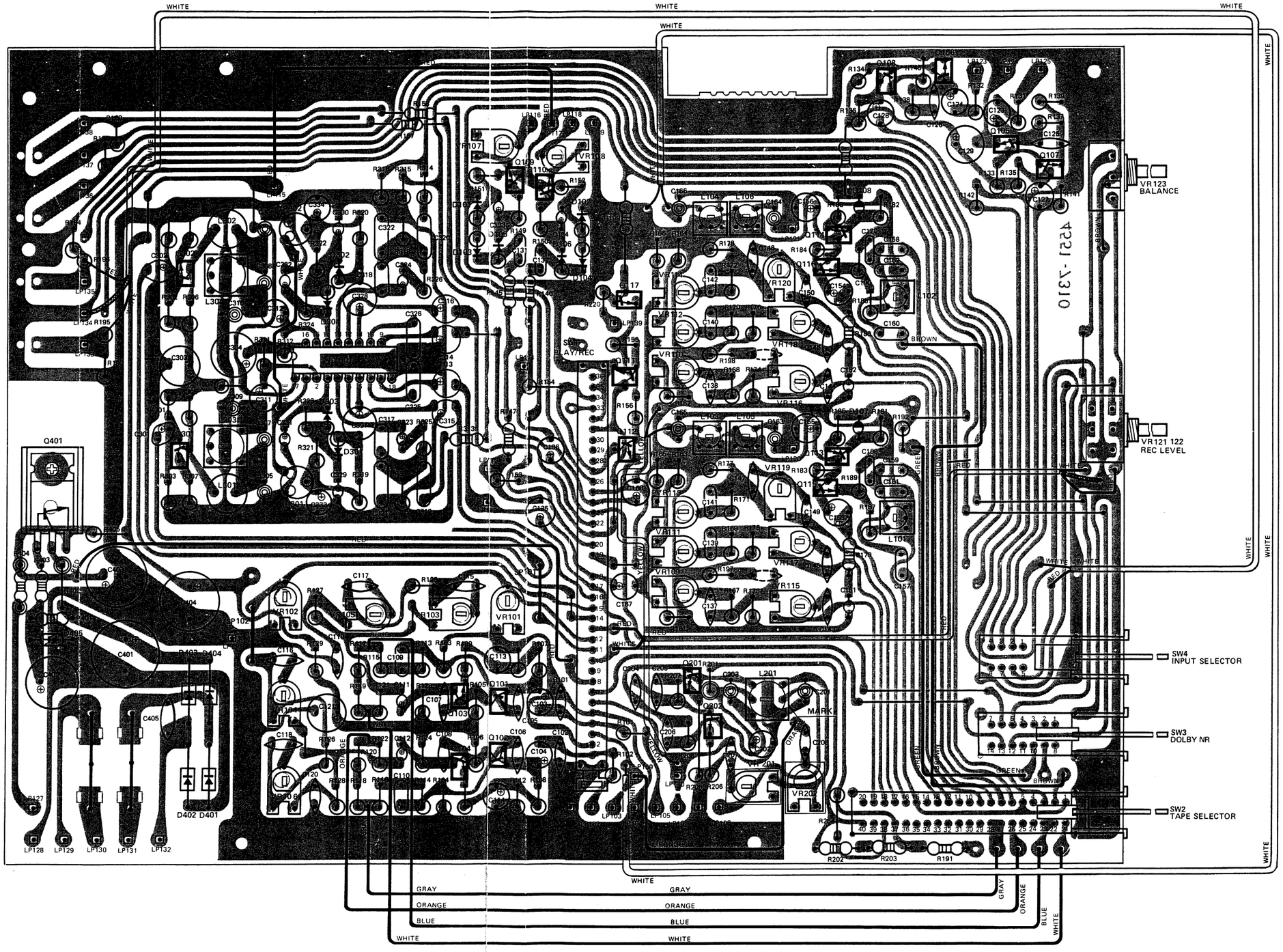


Q113, Q114, Q201, Q202

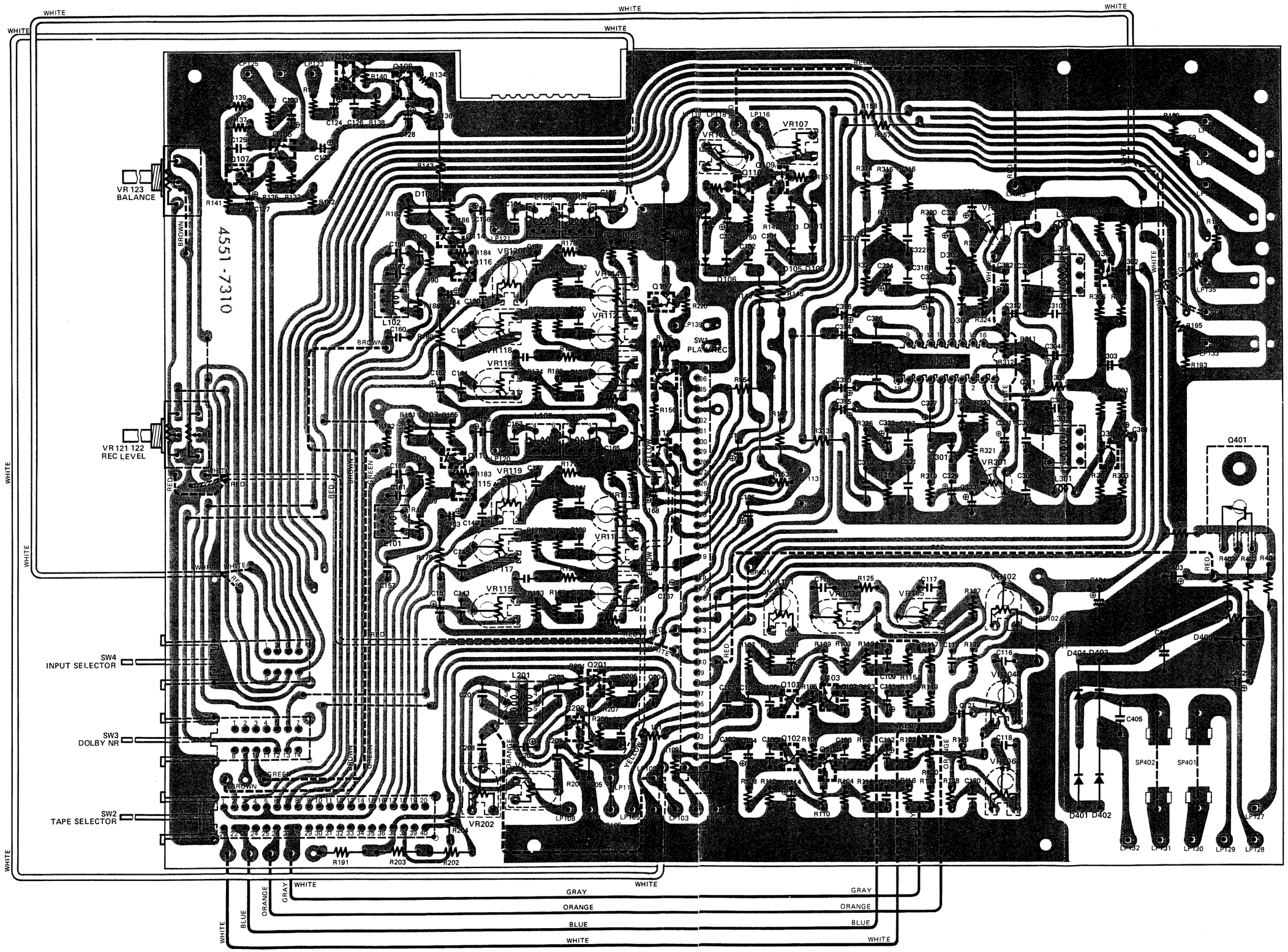


Q401

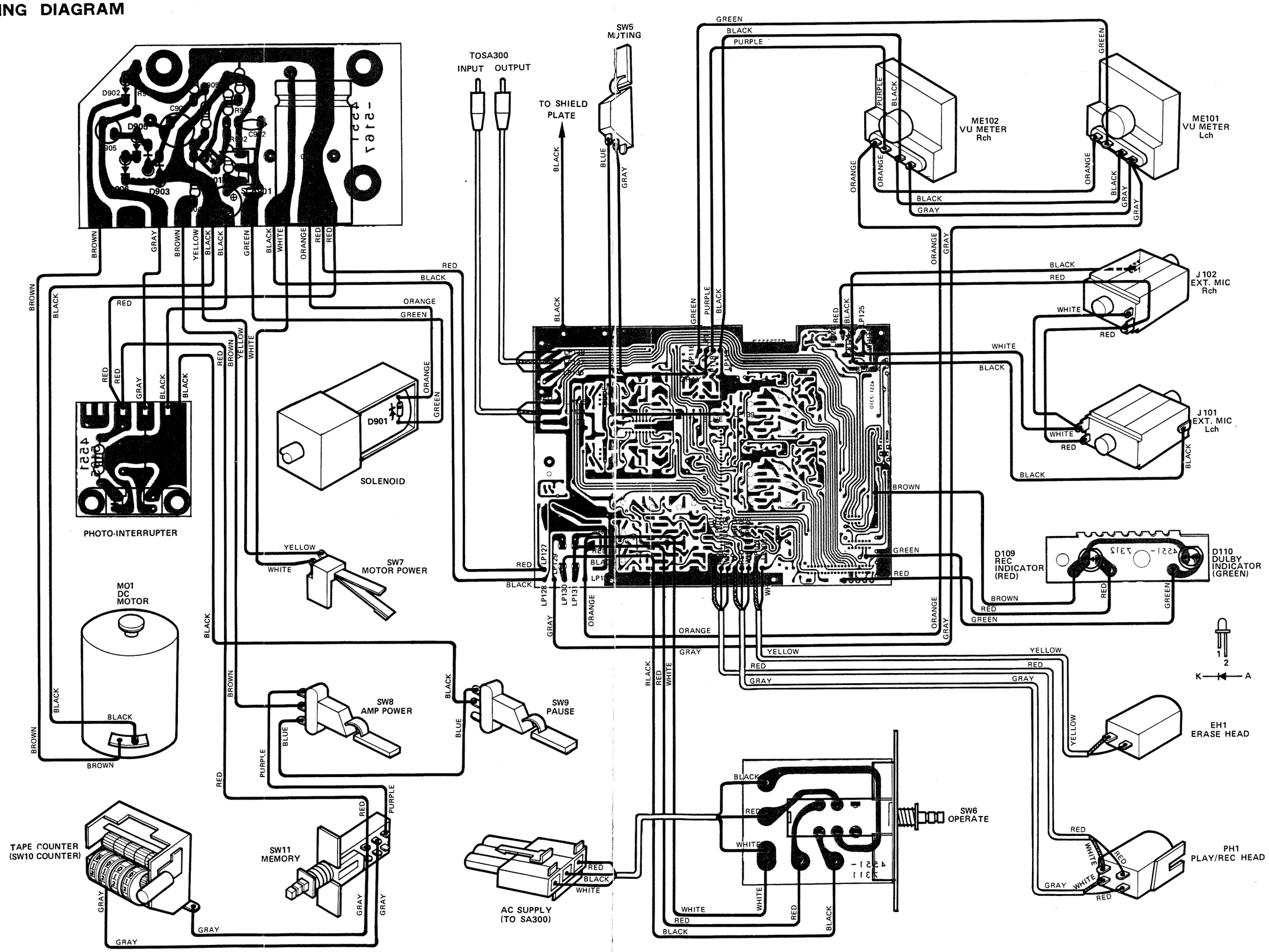




MAIN P.C. BOARD CIRCUIT SIDE



WIRING DIAGRAM



ELECTRICAL PARTS LIST

SER. NO.	REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY
	RESISTORS			
583	R317, 318	3.9 k ohm 1/4w Metal	5174-392392	
798	R404	10 ohm 1/2w Fuse	5102-1005710	
505	VR101, 102, 103, 104	50 k ohm, Semivariable Resistor, Playback Level Adjust.	5101-503083H	
506	VR105, 106	100 k ohm, Semivariable Resistor	5101-104083H	
808	VR107, 108	5 k ohm, Semivariable Resistor, Meter Adjust	5101-502083H	
629	VR109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120	20 k ohm, Semivariable Resistor, Rec. Level Adjust (Fe), Rec. Level Adjust (Fe CrO2), Rec. Level Adjust (CrO2), Rec. Equalizer Medium Frequency Adjust (Fe), Rec. Equalizer Medium Frequency Adjust (FeCrO2), Rec. Equalizer Medium Frequency Adjust (CrO2)	5101-203083H	
749	VR121, 122	100 k ohm, Variable Resistor, Rec. Level Control	5113-1048640	
748	VR123	100 k ohm, Variable Resistor, Balance Control	5113-1047763	
685	VR201, 202	100 k ohm, Variable Resistor, Bias Level Adjustment	5101-10471913	
566	VR301, 302	10 k ohm, Variable Resistor, Dolby Level	5101-1037374	

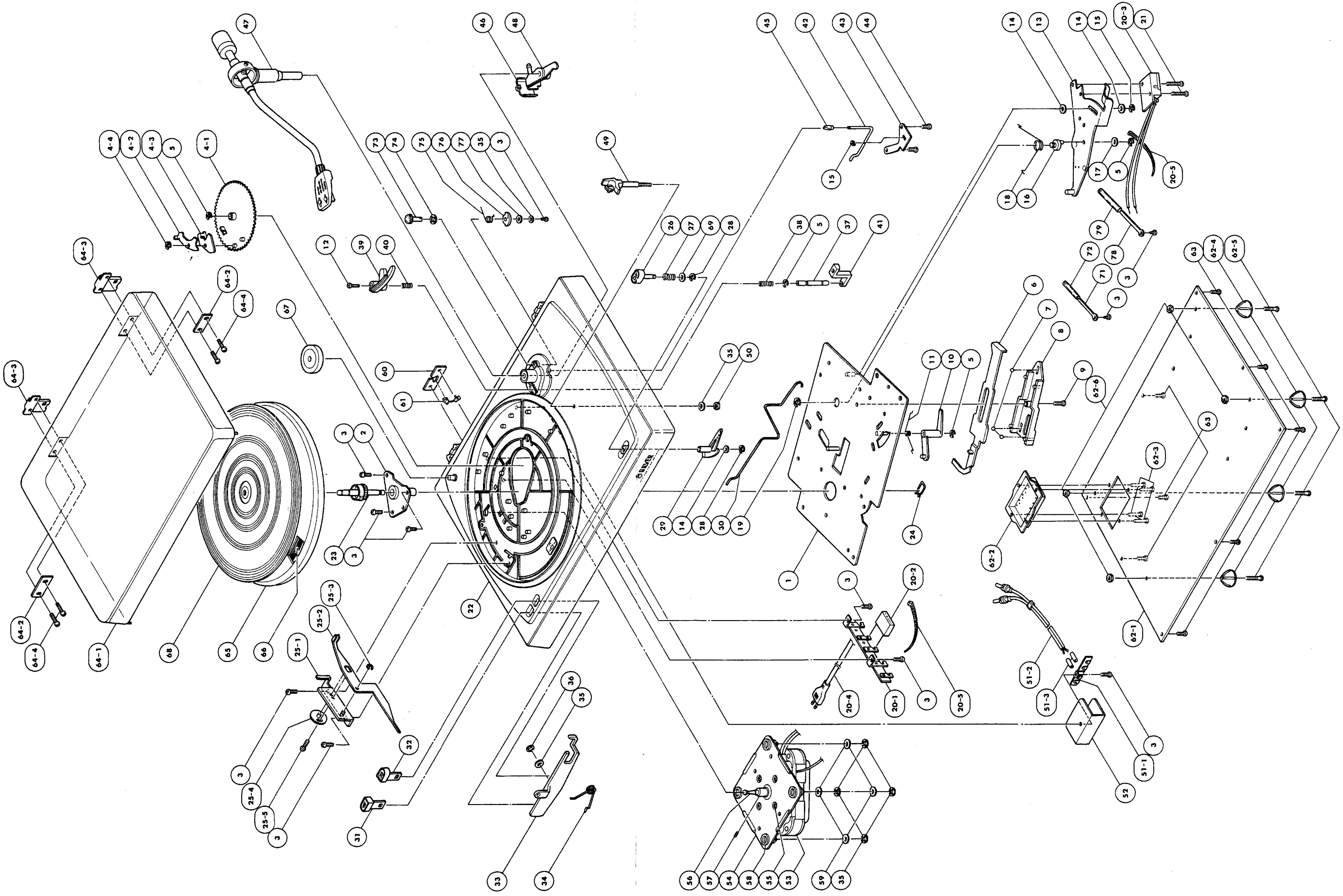
SER. NO.	REF. NO.				PART NO.	ORDER Q'TY
	CAPACITORS					
518	C101, 102	390PF	50V	Ceramic	5361-391KB	
508	C103, 104, 311, 312,	10MF	16V	Electrolytic	5345-106C0951	
519	C105, 106, 115, 116, 204, 205, 206	470PF	50V	Ceramic	5361-471KB	
517	C107, 108	20PF	50V	Ceramic	5361-200092	
512	C109, 110	0.018MF	50V	Mylar	5354-183JIHM	
515	C111, 112, 151, 152, 301, 302	0.47MF	35V	Tantalum Electrolytic	5343-4740658	
509	C113, 114, 135, 136, 167, 168, 313, 314, 315, 316, 327, 328, 333, 334	10MF	16V	Electrolytic	5345-106-16	
520	C117, 118, 137, 138	3300PF	50V	Ceramic	5361-332KB	
521	C119, 120	4700PF	50V	Ceramic	5361-472KB	
510	C121	100MF	16V	Electrolytic	5345-107-16	
715	C123, 124	4.7MF	25V	Electrolytic	5345-47500951	
718	C125, 126	33PF	50V	Ceramic	5361-330KSL	
714	C127, 128	3.3MF	50V	Electrolytic	5345-335F0951	
716	C129, 403	220MF	16V	Electrolytic	5345-227-16	
812	C131, 132	0.033MF	50V	Mylar	5354-333KIHM	
810	C133, 134, 323, 324, 331, 332	0.33MF	35V	Tantalum Electrolytic	5343-3340658	
638	C139, 140, 141, 142	0.01MF	50V	Mylar	5354-103KIHM	
646	C143, 144, 149, 150	2200PF	50V	Ceramic	5361-222KB	
648	C145, 146	2700PF	50V	Ceramic	5361-272KB	
645	C147, 148	820PF	50V	Ceramic	5361-821KB	
634	C153, 154, 155, 156	1MF	50V	Electrolytic	5345-105-50	
640	C157, 158	1000PF	50V	Mylar	5354-102KIHM	
639	C159, 160	3300PF	50V	Mylar	5354-332KIHM	
637	C161, 162	0.012MF	50V	Mylar	5354-123KIHM	
650	C163, 164, 165, 166	220PF	50V	Stylor	5355-221JIHS	
644	C169, 170	2200PF	50V	Mylar	5354-222KIHM	
688	C201	3300PF	125V	Stylor	5355-332J2BS	
694	C202	47MF	16V	Electrolytic	5345-476-16	
687	C203	6800PF	50V	Stylor	5355-682J1HS	
691	C207, 208	82PF	50V	Ceramic	5361-820KSL	
576	C303	100MF	16V	Electrolytic	5345-107-16	
575	C304, 402	470MF	16V	Electrolytic	5345-477-16	
578	C305, 306	3900PF	50V	Stylor	5355-392J1HM	
579	C307, 308	3000PF	50V	Stylor	5355-302J1HS	
580	C309, 310	2200PF	50V	Stylor	5355-222J1HS	
583	C317, 318	4700PF	100V	Polypropylene	5359-4727954	
584	C319, 320, 321, 322	0.015MF	100V	Polypropylene	5359-1537954	

SER. NO.	REF. NO.				PART NO.	ORDER Q'TY
586	C325, 326	0.1MF	50V	Mylar	5354-104J1HM	
570	C329, 330	0.1MF	35V	Tantalum Electrolytic	5343-1040658	
777	C401	2200MF	25V	Electrolytic	5345-228-25	
778	C404	2200MF	16V	Electrolytic	5345-228-16	
790	C405	0.047MF	50V	Ceramic	5361-473ZF	
554D	C901	2200MF	16V	Electrolytic	5345-2280213	
552D	C902	0.01MF	50V	Ceramic	5361-103093	
555D	C903	0.1MF	16V	Al. Solid	5346-104094	
539D	C904	10MF	25V	Electrolytic	5342-106D0951	
540D	C905	2.2MF	25V	Electrolytic	5342-225D0951	

				ORDER Q'TY
	SEMICONDUCTORS			
561	IC 301	Integrated Circuit, Dolby	5652-HA11226	
501	Q101, 102, 103, 104, 301, 302	Transistor, Playback Eq. Amp., Pre Amp.	5613-1344(E)	
711	Q105, 106	Transistor, Mic. Amp.	5613-1344(D)	
712	Q107, 108, 109, 110, 111, 112, 115, 116, 117, 901	Transistor, Mic. Amp., Meter Amp., Muting, Rec. Amp., SCR Driver	5613-458(D)	
621	Q113, 114	Transistor, Voltage Regulation	5611-844(E)	
681	Q201, 202	Transistor, Bias Osc.	5613-1213(C)	
771	Q401	Transistor, Voltage Regulation	5613-1419(C)	
804	D101, 102	Varistor, Bias Compensation	5641-HV23G	
803	D103, 104, 301, 302	Diode, Rectifier	5631-IN34A	AA 133
805	D105, 106, 903, 904, 905, 906	Diode, Rectifier, Tape Stop Sensor, Switching	5631-1S2473	1N4148
624	D107, 108	Varistor, Bias Compensation	5641-MV11	
757	D109	L.E.D. Rec. Indicator (Red)	5637-GL3AR2	
758	D110	L.E.D., Stereo Indicator (Green)	5637-GL3PG2	
565	D303, 304	Diode, Filter	5631-1S2076	1N4148
774	D401, 402, 403, 404	Diode, Rectifier	5632-ERB12-01	1N4007
773	D405	Zener Diode (12.8~13.7V)	5635-RDBEB3	
535D	D901, 902	Diode, Spark Killer, Motor Protector	5632-1SR34-10	
531D	SCR901	Silicon Controlled Rectifier, Solenoide Driver	5661-2P05M	TIC 106 M
	COILS			
626	L101, 102	Coil, Peaking	5932-4023	
627	L103, 104, 105, 106	Coil, Bias Trap	5932-4033	
683	L201	Coil, Bias Osc.	5933-4115	
568	L301, 302	Coil, MPX FIlter	5995-363123	
567	L303, 304	Coil, MPX Filter	5933-4035	
	MISCELLANEOUS			
502	SW1	Remote Switch, Play/Rec.	4422-7011	
746	SW2	Lever Switch, Tape Selector	4462-083711	
745	SW3	Lever Switch, Dolby NR	4462-042713	
744	SW4	Lever Switch, Input Selector	4462-022714	
743	SW5	Spring Switch, Muting	4463-20	
741	SW6	Push Switch, Power	4431-01027146	
222	SW7	Spring Switch, Motor	4463-40	
507D	SW8, 9 SW10	Spring Switch, Amp, Pause Part of Tape Counter	4463-17	
510D	SW11	Push Switch, Memory	4431-01027446	
751	J101, 102	Jack, Ext. Mic.	4451-7168	
753	M101, 102	VU Meter	4323-7130	
760		Cord with Plug	4161-7181	
761		Connector with Lead	4163-70343	
	MO1	DC Motor (w/Pulley)		
501D	PH1	Play/Rec. Head	5874-3312	
502D	EH1	Erase Head	5873-229	
513D		Photo-Interrupter, Tape Stop Sensor	5624-GP411	
518D		DC Solenoide	4333-4035	

STEREO PLAYER : MODEL SL300

RECORD PLAYER EXPLODED VIEW



MC-Service

RECORD PLAYER MECHANICAL PARTS LIST

REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
1	Subchassis Assembly	871173-1			
2	Actuating Pawl Assembly				
3	BT ⊕ (3×8 mm)				
4-1	R Gear Assembly 1	895248			
4-2	Clutch Plate	894901			
4-3	Clutch Guide	894902			
4-4	E-3				
4	R Gear Assembly 2	895249			
5	E-3				
6	Actuating Arm	870933			
7	Steel Ball				
8	Actuating Base	870932			
9	BT ⊕ (3×12 mm)				
10	Kick Lever	890218			
11	Reset Spring	891191			
12	FM ⊕ (3×14 mm)				
13	Operating Plate Assembly	896487-1			
14	FW (3.2φ×10φ×0.5t)				
15	E-2				
16	Pin 2	895073			
17	BW (5.2φ×10φ×0.2t)				
18	Spring 1	895251			
19	E-6				
20	Switch Assembly	871493			
20-1	Tag Mounting Strip	894228			
20-2	Capacitor	892428-2			
20-3	Microswitch	895430-1			
20-4	2P Cord Assembly	895617			
20-5	Wire Fastener	894408			
21	FM ⊕ (2.6×14 mm)				
22	Cabinet Board	846630-1			
23	T.T. Spindle Assembly	702279			
24	Stoper	E-271110			
25	Change Base Assembly 2	870405			
25-1	Change Base Assembly 1	893046			
25-2	Change Arm	870402			
25-3	E-3.2				
25-4	Pin	893040			
25-5	FM ⊕ (3×8 mm)				
26	Reject Button Assembly	896442-3			
27	Button Spring	892084			
28	E-3.2				
29	Reject Lever	892085			
30	Reject Spring	896722-1			
31	Push Button Assembly	896439-6			
32	Push Button Assembly	896439-7			
33	SP Change Cam	896443			
34	Click Spring	893180			
35	FW (3.2φ×8φ×0.5t)				
36	CS Circlip				
37	Raising Spindle	895671-1			
38	Raising Spring	E-832780			
39	Raising Plate	896444			
40	Spring	895021-1			
41	Cueing Arm	895676			

REF. NO.	DESCRIPTION	PART NO.	ORDER Q'TY		
42	Cueing Lever	895677-1			
43	P.U Base Plate	896445			
44	FMT ⊕ (2×4 mm)				
45	Cueing Knob	893914			
46	Forwarding Arm Cover	894756			
47	P.U Assembly	851403			
48	Forwarding Arm Assembly 2	893583-3			
49	Arm Rest Assembly	895229-1			
50	FLN-3				
51	5P Tag Mounting Strip Assembly	896531-1			
51-1	5P Tag Mounting Strip	890979			
51-2	Shield Wire Assembly	890496-1			
51-3	Tube				
52	Shield Plate	890959			
53	Motor Assembly				
54	Plate Riveting	896147			
55	TP ⊕ (3×6 mm)				
56	Pulley	703740-2			
57	T ⊖ (2.6×2 mm)				
58	Bushing	702230			
59	FW (3.2ϕ×12ϕ×0.8t)				
60	Fixing Bracket	893037-1			
61	SR Bushing	891568-3			
62	Bottom Cover Assembly	871465-1			
62-1	Bottom Cover	871452			
62-2	Motor Cover	896447			
62-3	FMT ⊕ (3×12 mm)				
62-4	Foot	892227			
62-5	FM ⊕ (3×14 mm)				
62-6	FLN-3				
63	FMT ⊕ (4×12 mm)				
64	Dust Cover Assembly	851134-4			
64-1	Dust Cover	851097-5			
64-2	Plate	895231			
64-3	Hinge Assembly	895215			
64-4	FM ⊕ (4×8 mm)				
65	Turntable	620011			
66	Belt	700515-B			
67	EP Adaptor	890876			
68	Turntable Mat				
69	NW (3.2ϕ×10ϕ×0.5t)				
71	Lug	E-888750			
72	UL Tube				
73	I.F.C. Knob Assembly	896627			
74	Metal Spring	404182			
75	I.F.C. Spring	895674-1			
76	I.F.C. Cam	895675			
77	Bushing	893215			
78	Lug	890755			
79	UL Tube				

RECORD PLAYER INFORMATION

STYLUS REPLACEMENT

1. Loosen the clamp collar ring on the tone arm and remove the cartridge-shell.
   NOTE: At this time, be sure to cut off the power source of your amplifier being connected with this unit.
2. Pull the stylus out in the direction of the arrow as shown in the figure.
3. Insert the new stylus in the opposite direction of the arrow.

CARTRIDGE REPLACEMENT

When a different phono-cartridge from the attached one is used, install it using the following directions.
The weight of cartridge for this equipment should be from 2 to 7 grams.

1. Connect the cartridge to the cartridge-shell by the use of leads.
2. Provide a distance of 50 mm between the stylus end and the rubber grommet on the cartridge-shell.

STYLUS PRESSURE ADJUSTMENT

1. Detach the tone arm from the tone arm rest and bring it over the turntable-platter surface.
   Hold the tone arm by your hand to avoid damaging the stylus.
2. While rotating the counterweight, move it forward and backward until the tone arm is balanced horizontally.
3. Supporting the counterweight by your hand, turn scale ring so that "0" graduation aligns with the line mark on the tone arm.
4. Turn the counterweight in the direction to increase a figure, and align the value of proper stylus pressure for phono-cartridge mounted on the cartridge-shell with line mark. The stylus pressure of the phono-cartridge furnished is 2.5 grams.

ANTI-SKATING FORCE CANCELLER ADJUSTMENT

1. Set to a figure corresponding to the stylus pressure 2.5 grams. The control is continuously adjustable.
2. If after adjustment, the tone arm tends to skate out, lower the setting. If it skates in, increase the setting.